

(For private circulation.)

HYDERABAD AFFAIRS.

COMPILED BY

MOULVIE SYED MAHDI ALI,

REVENUE AND FINANCIAL SECRETARY TO

H. H. THE NIZAM'S GOVERNMENT,

HYDERABAD (Deccan).



VOL. I.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Bombay:

PRINTED AT THE TIMES OF INDIA STEAM PRESS.

1883.

EPITOME OF CONTENTS.

VOL. I.

Physical Features and Natural Phenomena.

PAGES.

Messrs. Palmer and Company's scheme for the navigation of the Godavery— Survey of the river—Opening of an establishment at Mahadeopore for the supply of timber, and another at Coringa for its disposal—Palmer and Company's efforts to develop the timber trade—Commercial dealings of the firm of Palmer and Company—Experiments in the navigation of the Godavery— Removal of obstructions to navigation from the bed of the Godavery— Issue of orders to Zemindars whose possessions lie on the banks of the Godavery not to charge traffic with transit dues—The British Government negotiates with the Nizam to obtain land adjacent to the Godavery to facilitate navigation and promote irrigation	1 to 8.
Experiments in cotton cultivation at the Bouldana Farm, Western Berar—Appeal by Mr. Davidson for aid in support of the farm—Description of the Chikuldah hill station	8 to 14.
Mining operations at the Chaudah coal fields—Experiments with coal from the Sasti pits—Description of the Kummurwarum coal field—History of its discovery—Quality of the coal—Comments on Mr. W. King's reports regarding the coal resources of the Nizam's dominions—Contemplated construction of a railway to connect the Wurdah valley and the Khummumet coal field with Hyderabad—The Nizam's territory as a field for the investment of capital— Results of coal borings at Budrachellum and Singareny—Offer of a loan of £10,000,000 to the Nizam by a London firm of capitalists	14 to 21.
Letter from Captain R. F. Burton detailing the history of the Nizam's Diamond— History and description of the Golecondah diamond diggings—Mr. William Sowerby's opinion of the mineral resources of the Nizam's dominions—Captain Burton's reply to Mr. Sowerby's letter	21 to 29.
Major W. G. Murray's report on the Hyderabad surveys, comprising— position and extent of the Nizam's dominions, boundaries, climate and temperature, rivers, lakes, tanks, roads, chief towns, forts, droogs, hills, soil and timber, exports, population and tribes, languages, land tenure, revenue, game and sport, troops, auxiliary force, cantonments:— Aurangabad, Ellichpore, Hingolee, Bolarum, Mominabad, Lingasagoor, Jaulnah, Akola, Oomrawuttee, and Warrungul; history of the reigning family, Circars, Great Trigonometrical Survey data; style and method adopted in the old Hyderabad survey, history of the survey and list of its officers, suspension of the survey and its causes, results and maps of the survey, atlas of India, geographical memoirs, extracts from the memoirs, resumption of survey operations, formation of a party on the 1st January 1855, Mr. Mulheran's appointment and peculiar fitness for the post, narrative reports, summaries of the reports for 1855-56, 1856-57, 1857-58, 1858-59, 1859-60, 1860-61, 1861-62, 1862-63, 1863-64, 1864-65, 1865-66, description of the station, Dhar, Ner, Ashti, Wirur or Birul, Ikjhera, Kopdi, Bham, Sakri, Mahur, Bitergaon, a list of the members of the party with dates of promotion, &c., conduct of the members of the party, Rekapali talooq, climate, timber and bamboo, water, grass, soil, tank, soil	

forest in the Rekapali sub-division, Budrachellum, population of, extract from the report of the Chief Commissioner of the Central Provinces, Dumagudium and the first barrier against the navigation of the Godavery river ; Talooqs of Chorla, Albalia and Nugur described, their cultivation, hills, drainage, tanks and soils, climate, roads, iron ore, coal, language, and tribes of the district, crime, remarks on the assistants	33 to 69
Memoir of the Raichoor Circar	70 to 105
Memoir of the Moodgul Circar	106 to 151
Memoir of a portion of the Kummumet Circar	152 to 157
Memoir of the Circar of Daroor, of the Soubah of Aurungabad	158 to 160
Memoir of the Nuldroog Circar	161 to 167
Geographical memoir of the Kalliance Circar	168 to 170
Memoir of Bhonagheer	171 to 179
Memoir of the Warungul Circar	180 to 185
Memoir of portions of the Koileondah, Gunhapoor, Pangul, Devercoondah, Mulkhaid or Mazufurnugur, Nuklecote, Edagherry and Kulburgah Circars ; ground work of the survey ; extent and limits ; manner of its execution ...	185
Descriptive memoir of the northern portion of the Hyderabad survey for the year 1824-25	186 to 191
Descriptive memoir of the Central part of the Survey	191 to 204
Memoir of the survey of the Northern part of the Circar of Mulkhaid, of the Soubah of Bedar	201
Geographical memoir of the Bheer Circar of the Soubah of Aurungabad	205
Geographical memoir of the Kowlas Circar	214
Memoir of the Pangul Circar	219
Geographical memoir of the Medduck Circar	229
Geographical memoir of the Elgundai Circar of the Soubah of Hyderabad	241
Geographical memoir of the Circar of Mullangoor	255
Memoir of the Bassim Circar	259
Memoir of the Nander Circar	263
Descriptive memoir of the Maiker Circar	273
Memoir of the Baythulwaddy Circar	279
Geographical memoir of the Bedar Circar	283
Memoir of the Dowlutabad Circar	290
Memoir of the Jaulnah Circar	296
Memoir of the Patree Circar	303
Memoir of the Nelgoondah Circar	308
Descriptive memoir of part of the Devurkonda Circar, comprising the whole of the Havalay and Marapully and portions of the Surreykonda, Indoorly, Pairoor and Chittial Pergunnas	311
Descriptive memoir comprising the whole of Amrabad and a portion of the Godhull districts in the Ghunapoorah Circar	315
Memoir of the Pangul Circar	321
Geographical memoir of the Circar of Purrainda of the Soubah of Aurungabad ...	323

Report on the Wardha Valley Coal Field, Rajur and Sasti, by Mr. E. G. Lynn, B.C.E.	363
Descriptions of Aurungabad, Bidar (Bedar), Daulatabad, Ellora (Eluru or Verul), Golconda, and Hyderabad State and City, from Dr. W. W. Hunter's "Imperial Gazetteer" of India	345
Description of the Hyderabad Assigned Districts and of Hingoli, Jalna, Naldurg, Nandair, Shorapur and Warangul, from Dr. W. W. Hunter's "Imperial Gazetteer" of India	359
Report of the river Godavery and its feeders, their navigable capabilities, the resources and trade of the adjacent countries, and the projected navigation works in 1863, by R. Temple, Esq., B.C.S., Officiating Chief Commissioner, Central Provinces; general scope and character of the navigation project; the river Wurda; the Pynegunja; the Wynegunga; the Pranheeta; the Godavery proper; the great Godavery; the Indrawatty; the Tal; the Sibbree; total distance of river navigation; navigation lasts for only half the year; navigation project; affected by the Railway and by Mahanuddy route; navigation project will hardly affect Berar; the country of Nagpore proper; valley of the Wynegunga; valley of the Wurdha; statistics of the Nagpore country; wheat, rice and sugar cultivation; ghco, hides, and iron industries; probable imports by the river; miscellaneous imports; military stores; port of Coconada; general conclusions; description of Chuttesgurh; present trade of Chuttesgurh; opening of roads; route by the Mahanuddy; route by the Godavery; prospects of future trade in that direction; the valley of the Godavery itself; the Bustan country; iron ore near the mouth of Wynegunga; topograph of the left bank of the Pranheeta; the situation of Sironcha; the junction of the Indrawatty river; the junction of Tal river; the station of Doomagodium and town of Budrachellum; the junction of the river Sibbree; the Eastern ghat mountains and the Godavery delta; the total area and cultivation on the left bank of the river; the population and revenue; the tanks; former troubles of the country; the condition of landed tenures; the agricultural products; the various kinds of soil; the climate; the forests and timber; the future prospects of agriculture; the hopes of immigration; towns near the confluence of the Godavery and Pranheeta; the Rootub Goota Hill; the tank district; administrative division; statistics; topography of both banks of the river; its future prospects; general conclusions; the navigation project; plans for improving navigation; works at the barriers; works in the river bed; works in the Wurda; reservoirs of water; estimated cost of navigation works at the barriers; cost of navigation works in the river bed; aggregate cost of the whole project; extent of navigation to be afforded by the projected works; amount and cost of work already done; the tramways at the barriers; total expenditure incurred up to September 1862; mode of prosecuting the works; effect in traffic from the completion of work on first and second barriers; reasons for postponing work at third barrier; cost of works now recommended; land carriage from valley of the Wurda to foot of third barrier; completion of tramways at first and second barriers; transit agency; should be maintained for Government work alone; without undertaking any commercial work; necessity for telegraph line being continued all the way along the Godavery; final conclusions arrived at regarding the execution of the navigation project	367 to 495
Communication from Lieut.-Col. R. Strachey, R.E., to the Chief Commissioner of the Central Provinces regarding the Godavery Navigation Works ...	494

Extract from the records of the Geological Survey of India; description of the valley of the Poorna river, West Berar--Particulars of the coal field near Chanda, Central Provinces--The Wardha river coal fields, Berar and Central Provinces--Geological notes relating to the Godavery valley--Geological notes of the Kummumet and Hanameonda districts--Notes on a coal field in the south-eastern part of Hyderabad--Notes on a possible field of coal measures in the Godavery district--Notes on the coal measures in the Beddadanole field, Godavery district	407
Statistical report on the Circar of Warangul	451
Statistics of the Circar of Doulatabad	498
Statistics of the City of Aurungabad	538
Statistical report on the Circar of Nelgoonda	556
Statistical report on the Circar of Kummumet	560
Statistical report on the northern and eastern districts of the Soubah of Hyderabad.	562
Statistics of the Circar of Pytun	591
Description of the rock cut caves of Aurungabad	660
Statistics of the Yelgundul Circar	671
Geological papers relating to Hyderabad	740
Extracts from Dr. Voysey's private journal when attached to the Trigonometrical Survey in Southern and Central India	751
Notes on a fossil fish discovered in the Deccan--Notes on the geology of the neighbourhood of Kotah, Deccan--Notes, principally geological, on the tract between Bellary and Beejapore--Extracts from the Summary of the Geology of India between the Ganges, the Indus and Cape Comorin, by H. J. Carter, Esq.--The Hyderabad granite formation	774 to 784
Account of coal borings at Kotah--Discovery of fossil fish in the Deccan--"Coal in the Deccan," report by G. F. H. Heenan, Esq., Superintendent, Kummum Coal Fields--History of the operations for the discovery of coal on the banks of the Wurdah, and Godavery--Result of the operations--Tests of specimens of the coal--Mercantile value of the coal seriously injured by the absence of water carriage--History of the discovery of coal at Kama-waram and of the subsequent operations in the district--Operations at Bollapully--Description of the Singareddy coal field--History of the discovery of coal on the right bank of the Godavery and of the boring operations conducted there	784 to 796
Discovery of archaeological remains by Herr Edelstein in the Hyderabad State--Obstacles thrown in the way of the prosecution of the search by the Nizam's P. W. D.--History of Herr Edelstein's antecedents	796
Review of Mr. Mahdi Ali's report on the survey operations in the Nizam's dominions	797
Memo. on the prospects of the cotton season in Berar for 1882-83	799
Notes on the agriculturists of the district of Aurangabad by Mr. Furdoonjee Jamshedji--Division of the agriculturists into four classes--Proportion of each class to the whole body--Kunbi life and manners--characteristics of the Kunbi--Kunbi language--The Deccan village--the Kunbi's food and dress--Festivals and religion of the Kunbis--Agriculturists and labourers and their working calendar for the year--The registered occupant and his	

co-sharer or tenant—Farm labourers—Balutydars or village artizans and menial servants of the community—The Kunbi's working calendar—The relations between the money-lenders and the agriculturists—Action of the Civil Courts—Terms on which the cultivator raises a loan in cash—Interest and compound interest—Loans of seed grain—Loans of grain for consumption—How bad debts are recovered—Proportion of agriculturists in debt—Boundaries of Aurungabad District—Area, wells, population—Agricultural population—Average area of holding, &c.—Average assessment—Assessment on dry and wet land—Average amount of land revenue for five years—Outturn of grain per acre—Expenses of cultivation—Field operations for the year—Household goods of a Kunbi—Estimated value of the total produce of the land—Surplus grain available for exportation—The profits of cultivation—Concluding remarks	801 to 833
Extract from Murray's Handbook of the Madras Presidency (second edition)—Descriptions of Adoni and Raichore—Route from Raichore to Goolburgah—Route from Goolburgah to Hyderabad—Description of Hyderabad, Secunderabad, and Goleondah—Route from Hyderabad to Beder—Route from Beder to Aurangabad—Route from Aurangabad to Dowlutabad and Rozah—Route from Aurangabad to Ajunta	834 to 881
Extract from Dr. Forbes Royle's work on "Cotton in India and elsewhere"—History of the cultivation of cotton in the Berars and the Nizam's dominions—Culture of cotton in the Nagpore territories—Culture of cotton in the territories of the Nizam—Culture of cotton in Sholapore	882 to 893
Extract from Mr. Cassell's work, "Cotton in the Bombay Presidency"—Experimental culture in Berar and the Nizam's dominions	893 to 914
Extract from Pharaoh & Co.'s "Gazetteer" of Southern India—History of the Northern Circars—Description of the Hyderabad State—Situation and boundaries—General aspect—Soil—Water supply, lakes and tanks—Rivers, roads, wild animals—Description of the city of Hyderabad—Its history—Description of Secunderabad—Description of Jaulnah—Description of Khaderabad, Goondiacama, Jooneer, Goolburgah, Bolaram, Bowenpilly, Moodianur, Sassenial, Idlapur, Tawerghiri, Umaluti, Manadhal, Hulikaddra, Sunkunhao, Nouli, Chuloor, Kannagherry, Siddapore, Mustoor, Gungawati and Hallicund	914 to 936
Description of the Golavery from Mr. Bowne's "Public Works in India," &c....	937

HYDERABAD AFFAIRS.

PHYSICAL FEATURES & NATURAL PHENOMENA.

MADRAS SPECTATOR, *September 14, 1849.*—"About the year 1811 or 1812 a native communicated to a member of the house of William Palmer and Co. that for several months of the year the Godavery contained a sufficient depth of water to be unfordable from Chinoor, situated on the Godavery about twenty miles above its junction with the Wurda, beyond which his information did not extend, and that the Zemindars whose lands lay on its borders were in the habit of traversing each the space within his own bounds in boats (in canoes); he attributed the absence of a continuous navigation to the feuds subsisting time out of mind between the Zemindars, which restricted them from entering their neighbours' limits, but said there was a tradition that Zuffar-ood-Dowla, a chieftain of the Nizam, had embarked troops in boats at Chinoor, and had surprised and carried Budrachulum, situated lower down, by the rapidity of his movement, the boats reaching their destination in one night. His further account of the river (his information was confined to the Godavery) was that there was obstruction at Pulmela, situated about a mile below Mahadeopore, to the navigation at certain seasons by rocks which then rose above the level of the water, and that a further invincible obstruction was opposed to a continuous navigation at Budrachulum by a whirlpool in which no boat could live.

"The vicinity of the places from Chinoor at which cotton is grown suggested to W. Palmer and Co. that if the navigation were practicable, though conducted by a double set of boats, a profitable traffic to the coast might be carried on, and Captain Tyler, of the Royal Navy, happening to be at that time on a visit to one of the members of the house, he undertook in conjunction with one of the partners to examine the river, on a proposal of being allowed a part share in any traffic in which that house might engage on the river.

"The project of conveying timber to the coast was included in the traffic, and Captain Tyler and a partner of the house visited the point of their destination, Pulmela, by a circuitous route, with the view to opening an intercourse with the Zemindars of Elgindul and Ramgeer, always in a state of opposition to the Nizam's Government, and of conciliating them to their project.

"Pulmela was visited. The river had here burst a mountain barrier. The rocks within the bed of the river which had not been swept away by the force of the torrent at the time of the year, the hot season, stood 12 or 15 feet higher than the level of the stream, winding through several narrow passages between the rocks, but it was at once perceptible, from the high-water marks appearing in the lofty rocky mountains on the banks; that the river had a sufficient depth of water when at its full to float a seventy-four in that particular point of the river where it had suddenly narrowed from a width of a mile or more to about 100 yards or less (no measurement was made).

"The examination was so far satisfactory, but what was still more so was the information, gathered separately from all classes of the inhabitants of that locality, that there was smooth water high above the rocks for several months in the year, at which time their boats (canoes) traversed it; there could be at that time no personal examination of the whirlpool, which only existed with the rise of the

river, and which, if I recollect rightly, was said there also to be formed by rocks in the head of the river, and by the trending of the bank, and to be impassable.

"The traffic in timber to the coast, for which there was a great demand at the time, being supposed to offer a prospect of considerable gain, W. Palmer and Co. proceeded at once to make a large establishment at Mahadeopore to supply the timber, and another at Coringa to dispose of it. Captain Tyler had charge subsequently of the latter establishment, and two Indo-Britons in the ranks of gentlemen were placed, one to act in conjunction with him and the other at the head of the establishment at Mahadeopore. An establishment was subsequently made at Chanda, for the eventual purchase of cotton, and for the present experimenting its transit by the river. I have mentioned these circumstances to show that Lord Metcalfe, had there even been no other traffic conducted by W. Palmer and Co., was not justified in imputing to them that an intention to trade was made a pretence for obtaining a license from Government. As unpractised, unscientific men, W. Palmer and Co. and their agents were at fault in all their first efforts. The contract carriers of the country professed inability to move the larger timber on their carts. This was to be remedied, and twelve carts were built for them at Calcutta, by a scientific person, at a charge of 400 sicca rupees each. The next difficulty was that the cattle of the country were unable to drag, with the weight of the timber, the weight of these carts. A remedy was to be supplied, and two hundred head of large buffaloes were brought from Jubbulpore. Here there was a failure again. The climate was uncongenial to these foreign cattle, and they died too quickly to permit of any experiment as to whether they could draw the carts being made.

"Subsequently to this, shortly afterwards, it was fortuitously discovered that the country carts and cattle were quite equal to carry the largest timber which those forests produced, upwards of 60 cubic feet in measurement; but then, as the large timber was only to be procured in the interior intricacies of the forest, some difficulty was experienced for want of roads. This was obviated as it best could be, till it was recollected that the mountain torrents which everywhere intersect those forests might be taken advantage of to float the timber to the river, but it was felt to be necessary to guard against the timber being floated down the river by the rapidity of the torrent, from which it was considered impossible to rescue anything by the aid of boats; and, knowing no better, W. Palmer and Co. provided immense iron chains (but necessarily not sufficiently strong) to arrest the beams in their progress to the river, by being placed across the torrents."

These chains were ineffectual, they were burst wherever they had been placed, but the experiment enabled them to ascertain that the junction of the two streams, by forming a backwater, kept the timber within it in suspense a sufficient time to enable a canoe stationed near it to pick it up.

"The gentleman who had charge of W. Palmer and Co.'s establishment at Mahadeopore will be able to give information as to the localities where the timber is to be found. I rather apprehend, from the tenor of the communications made to W. Palmer and Co., that the large timber is dispersed insulatedly over the immense tracts of the forests, to be discovered only by personal inspection, and not from any information which can be derived from the wild inhabitants of that desolate country.

"It has been denied that W. Palmer and Co. had commercial dealings. The subject of which I am now treating will amply refute that assertion, and I shall limit myself to the instancing of this alone: the traffic of W. Palmer and Co. being a collateral matter to the purpose with which I am now writing, I shall hardly go into a description of the various branches of commerce conducted by them.

"William Palmer and Co. built a ship of their own timber, the *Georgiana*, of 360 tons' measurement; they consigned a cargo of timber to Calcutta; they sold timber at Coringa, from which several country crafts were constructed; they brought timber into Hyderabad, and they lost largely by their traffic, and by their engagement in matters collateral to it, which they adopted to aid their main object. Let it not be forgotten that they procured the assistance, from personal kindness

alone towards them, of a Captain of Engineers to survey the bed of the river Wurda from Chunda downwards.

"That they did not conduct their business profitably is no denial of the traffic. The proof of the traffic would be just as well ascertained by a loss as by a profit, nor is their want of success any proof that the speculation was injudicious. It is only a proof that the business was mismanaged; they were not fit persons to conduct it; the partners had little or no knowledge of commercial matters, they had not even a smattering of science; they were not given to the close economy of warehouses; and the agents they secured, from the materials such as the place afforded, were with one exception as incompetent as themselves.

"A Mr. Johnston (I believe, I am not sure of the name), of the coasting trade of England, whom the Minister after the war had consigned to Lord Hastings, had terms offered him by W. Palmer and Co. for the management of their concerns on the Godavery. Unfortunately they did not secure his co-operation, or the speculation affecting the traffic on the Godavery in respect to its navigation would have given the decided result either of complete success or an ascertained failure.

"Lord Metcalfe, in one of his despatches, told his Government that the young sporting gentlemen in his camp by shooting tigers, and Captain Clark by protecting the ryots, had resuscitated the district of Rangeer, which had become a wilderness. Further inquiry might have informed Lord Metcalfe that the large disbursements of W. Palmer and Co., and their advances to the cultivators, exceeding or very near a lakh of rupees (all of which has been lost), contributed in some measure to this resuscitation. When Mr. Fenwick was first established at Mahadeopore the labourers whom he employed were ignorant of the use of money, and were paid in rice and arrack for their labour. Mr. Fenwick taught them the use of money, and brought it into circulation—no small progress in civilization, and in the resuscitation of provinces.

"I have omitted to say in its proper place that the whirlpool at Budrachulum was not found dangerous on the occasions on which the Messrs. Fenwick journeyed by water to the coast, and is supposed by them to offer no obstruction to the navigation. But adverting to the information first obtained of this whirlpool, I should consider the experiments made by Messrs. Fenwick not sufficient to establish the fact of its being always practicable. They journeyed in the cold weather, and have no information of the state of the whirlpool at other times. It is not impossible that its force to absorb in its vortex may be greater during the rains."

MADRAS SPECTATOR, *October 26, 1853.*—*Navigation of the Godavery.*—We have been favoured with an interesting account of the recent expeditions up the Godavery, from which it will appear that whilst a great deal has been gained, in addition to the knowledge heretofore gleaned from the accounts of Captain Fenwick and others, with respect to the navigation of this interesting stream, nothing but the want of power on the part of the steamers prevented the explorers from reaching the very highest portion of the navigable channel. We notice that the *Pottinger*, the largest vessel and one that had most power, was stranded at an early period. Perhaps there was something in the name ominous of failure, but at any rate the coincidence was a very unlucky one. Our correspondent says :—

"It was at the height of the hot season, in the months of April and May, that the first attempt was made to navigate the river, that time being chosen as best adapted for taking note of the various difficulties likely to impede the navigation at such times as the river was not in flood. With some difficulty, and by dint of perseverance, a point about thirty miles above Budrachellum, or 170 miles from the sea, was gained; and much valuable information as to rocks, shoals, sites of whirlpools, &c., registered for future use, the report being accompanied with rough sketches of such portions of the stream as comprised the chief obstacles. So far as the boats went the object in sending them was gained, and it had been intended

that they should have remained up there, making their way onwards as the river rose ; but small-pox being prevalent in the adjacent villages, and the weather intensely hot and trying, the officer in charge decided on bringing down the party under his command. •

“ With the first freshes of June, preparations for a second trip were set on foot, and a start made towards the end of the month, on the first decided rise of the water. A twofold experiment was made on this occasion, in navigating the river by different descriptions of boats ; the one, a steamer of some 90 feet in length and 2 feet draft of water, that had been for some years in use as a very efficient tug on the extensive works at Dowlaishwarum, where she was built ; and the other a cargo boat of plate-iron, 60 feet by 11 feet by 5 feet, with very small draft of water, and capable of holding some 56 tons of salt or grain, also built at the Dowlaishwarum works.

“ The boat was despatched empty, with a crew of 10 men and 1 tindal, about a week before the steamer started, and made its way about 100 miles up the river before it was overtaken. As long as the freshes were moderate, while high enough to clear her of shoals and rocks, the steamer made fair enough progress, though greatly delayed by daily stoppages to cut wood for her fires (on account of her not being able to reach the points where wood had been stacked for her), and by the necessity of laying up during each night. As the river rose (which it did to some purpose, overflowing its banks and rising to a height of 60 or 70 feet above its summer level) the steamer became less and less able to contend with the force of the current. 4½ miles per hour, her speed, was inadequate for the navigation of a stream whose centre current in places exceeded 6 miles ; it was only by dint of constant crossing the river so as to keep under that bank where there was least current, or by keeping in the shallow water among trees and shrubs over a submerged bank, or by the assistance of warps, that it was possible at last to make any way at all. In one week a progress of only 15 miles was reckoned to have been made ; and it was 6 or 7 weeks from the date of leaving Dowlaishwarum before the steamer had reached Enkumpilly, a village 230 miles from the sea. This point is 8 miles below the confluence of the Indrawuttee, and not far from the large town of Mahadeopoor on the right bank of the river.

“ At this place the exploring party found themselves at last inextricably entangled amidst a crowd of rocks, on which having struck several times they were obliged to find the best berth they could for the steamer, and let her take the ground firmly. This was happily effected, and the rapid fall of the fresh giving easy access, all round, the rocks, of a slaty formation, were knocked away in places so as to equalize as much as possible the strain on her timbers. Still an evident twist in her shape aft was perceptible, and her position was anything but an agreeable one to be witnessed by those who had hoped to extend their trip in her so much further. Although 40 feet below the level of the flood of a few days before, she was soon 20 feet above the still falling stream !

“ By this time one of the party had become so seriously ill that the senior officer decided on returning with him to Dowlaishwarum, and there organizing another expedition. The descent of the river was commenced in primitive enough style, on ‘ sungadies ’ as they are called, consisting each of a couple of small canoes bearing between them a raft of sticks. For the first 40 miles the current only had to be trusted to, but after descending the stream to Mungapett a small paddle-boat, worked by four men, which had been abandoned on the way up, was recovered, and served not only as a better conveyance for the invalid, but as a diminutive tug for the two rafts. By such means Dowlaishwarum was reached on the fifth day, although the river had fallen most unusually low for the season, and the current was proportionately slow.

“ To return to the steamer. Once secured in her rocky berth, and nothing more to be done with her till the freshes should again rise high enough to float her off, her commander prepared to carry out his instructions, which were to proceed by land through Mahadeopoor to Chinnoor, and get all the information possible relative to the trade of the adjacent country, especially in cotton. In the mean time the

iron boat was slowly pushed up by its indefatigable crew till it reached the town of Chinnoor, which is about 250 miles from the port of Cocanada, and at the confluence of the Godavery and Pranheeta (or Wurdha). At Chinnoor it appeared that the nearest cotton mart was at 'Jennagoum,' whither an intelligent Naick of Sappers was despatched to learn the price of cotton and see whether a cargo could be procured. It could not be clearly ascertained from him how far this 'Jennagoum' was from Chinnoor, or in what direction it lay; but most probably it is the town marked 'Yennagaom' or 'Joongaom' on different maps, about 30 miles only from Chinnoor, and close on the banks of the Godavery itself. By carting the cotton over these 30 miles a cargo might have been obtained; but the exploring party were no traders; every advantage would of course have been taken of the strangers; and the venture, though it could not have failed to be remunerative, would not have given a fair view of the profits to be derived from a trade on the Godavery. High freshes having come down so unusually early as to float the steamer off the rocks at the end of August, her commander thought it his duty not to risk her being again left high and dry by the retreating flood; he therefore recalled the cargo boat with all haste, and determined to make the best of his way down the stream when the fresh was at its highest.

"His communications with Dowlaishwarum having been kept up very imperfectly, it was rather a surprise to him towards the end of his first day's steaming (with the empty cargo boat in tow) to find himself hailed from the left bank of the river, some eighty miles below Enkumpilly, by the senior officer above mentioned as having returned to Dowlaishwarum in charge of the sick. It appeared that he had there found a small new steamer just turned out of the workshops, in which (after a 10 days' run over his other important works, in the course of which the new vessel had had several trials given her) he again ascended the river, accompanied by the scientific officer who had constructed the engines and was alone competent to work them. His voyage up to the spot where the two steamers met had been most successful; his little vessel, 45ft. by 8ft. by 4ft. and with 16 inches average draft of water, was propelled by her engines at a maximum rate of $6\frac{1}{2}$ miles an hour, insufficient to stem the current in the middle, or the strong sets off the bluffs, but realizing 2 to 3 miles an hour by creeping under the most sheltered bank, to gain which a crossing had every now and then to be made.

"Thus, little more than 5 days' steaming had taken him up 120 miles, or 20 above Budrachellum. There the second fresh of the season was nearly at its highest, every rock was submerged, the banks overflowed, and the river a magnificent sheet of water; but the current became so overpowering that only by skirting the water's edge could any progress be made. This was rather too rough work for so small a craft, with her delicately dimensioned engines; the paddle floats came in contact with many a standing tree, or log of driftwood, and at last striking a shelving bank heavily two or three times on the starboard side the crank of the engines gave way and left her totally disabled.

"This was a severe blow to the director of the expedition, just when the little vessel promised well to take him up, perhaps as far as Chandah, could she have been kept going. Here was his second steamer disabled, and for all he knew the larger one might be a total wreck. Spite therefore of his leaving a great part of the object of his mission unaccomplished, it was not without a thankful feeling that just as he had prepared to take the small steamer down the river with her sail and roughly made oars he saw the larger one, of which he had had no news since he left her in danger on the rocks, steaming past him at the rate of 10 miles an hour, with the iron boat in tow, as sound, and steering as well, as ever.

"Two days' easy steaming sufficed for the *Pottinger* (as the larger vessel was called) to tow down both her consort and the cargo boat to Dowlaishwarum, where they all arrived safely on the evening of the 9th September.

"The first practical conclusion arrived at from these expeditions is that the effectual navigation of the Godavery and Wurdha rivers, with their valuable tributaries the Pranheeta, Indrawutty, &c., must be conducted by far more efficient steamers than such as are at present at the disposal of the officer in charge of the

Godavery works. Something like what are seen on the American rivers must be used in this navigation ; boats of considerable tonnage but small draft of water, and propelled by engines powerful enough to secure 4 or 5 miles an hour against the strongest mid-current of the river. With such vessels the rapid tributaries of the Mississippi, Missouri, and Ohio are navigated during the period that they are in flood, and by their means the cotton crops of a whole season are carried off in a very limited space of time from tracts of country otherwise inaccessible to cheap carriage. An efficient steamer of the kind could be completed for less than £5,000, her engines being sent out from Europe, and fitted in a teak or iron hull, to be put together at the Dowlaishwarum works. The successful passage of the iron boat to Chinnoor proves that the river may be navigated without steam during the freshes, and that so cheaply that a single voyage in the year would be amply remunerative.

"In the mean time no doubt a series of such expeditions as those above narrated will be carried on throughout the circle of the year, by the means of hands made as efficient as possible. A practical knowledge of the river in all its phases will thus alone be gained. Acting on this principle, most probably another expedition will have started ere this, the smaller steamer having in the mean time been lengthened to 60 feet in hopes of bringing down her draft to 12 or 13 inches, which, with an improved entrance to her formerly rounded bows, will, it is hoped, add half a knot or more per hour to her speed. A new wrought iron shaft will replace the broken one, or, should that not be easily managed, she will not again be left without a couple of cast iron shafts, one spare in case of future accidents.

"Again, the ensuing dry season will not fail to be taken advantage of by employing blasting and quarrying parties in the removal of all rocks liable to be dangerous whose positions have already been ascertained and laid down accurately in sketches. At the few spots where whirlpools exist it is expected that much may be done to lessen their violence by removing large masses of the rocky promontories which, by contracting the width of the river and giving rise to strong currents and back eddies, are invariably found to be their cause. Such an amelioration may easily be made of the worst whirlpool encountered, that at Kuchaloor, which at the height of the fresh was sufficiently alarming in appearance to cause a halt for a day and a half to the *Pottinger* with her long train in tow, a portion of which, viz., the disabled steamer, being warped down, she eventually towed past the other in safety. The only other whirlpool thought seriously of is at Tallagoodium (otherwise called Mooknoor in Captain Fenwick's Report^a) ; its situation is just above where the *Pottinger* stranded, but it has not yet been seen at its height by any accurate observer. Measures may also be taken towards the deepening of the shoals, and improvement of the rapids occurring when the river is low ; and it is very essential that the levels of its bed should be accurately ascertained from the annuit upwards.

"In the ruinous rate of transit duties levied on both sides of the river we see the real impediment which has ruined the Godavery for all purposes of trade. The Government and petty chiefs long ago killed their goose with the golden eggs, destroying that commerce which would have enriched their still poor and forest-grown country. In vain will the rocks, shoals, and rapids of the river be overcome, and the whirlpools deprived of their terrors ; so long as each petty robber may detain goods passing within hail of him, and levy black-mail on them with impunity, so long is it hopeless to expect that any native traffic can exist upon the river. Only powerful European houses will be able to make their way against these exactions, which were vexatious enough nearly to stop the enterprises of Messrs. Palmer and Co. in these waters 30 years ago, with all their local interest and power.

"The greatest evil of these exactions is their undefined and arbitrary nature. No one can now tell what it would cost him to take a cargo of cotton from Chinnoor, still less from Chandah, into Rajahmundry, for no one has done such a thing

* Portions of which, strange to say, figure in Mr. Chapman's book on Bombay Railways, while he absolutely ignores the main fact it went to prove, viz., the superiority of the Godavery to any railway that could be made as a means for the cheap transmission of cotton to the coast.

for years. The profits of the first speculators on the river might be entirely sacrificed to the cupidity of the landholders on its banks. The whole question of land customs in the Nizam's dominions requires to be taken up, and some endeavour made to compound with the Jaghiredars along the lines of communication for the payments they exact on goods passing through their limits. If on the highroad from Madras to Hyderabad, north of the Kistnah, a stop has not yet been put to this system of plunder, so detrimental to commerce, it may be imagined how hopeless the state of affairs is on the secluded and lawless banks of the Godavery."—*Athenæum*, October 25.

ENGLISHMAN, *April 19, 1855*.—The following is from our Hyderabad correspondent :—

"The bed of the Godavery is a scene of active bustle and uproar ; a numerous body of miners is employed in blasting the rocks which obstruct the navigation on the fall of the river. It is fully expected that the river will be made navigable for all times and seasons. Are William Palmer and Co., who pioneered the way for this great undertaking, entitled to no recompense ? and who suffered obloquy by Sir Charles Metcalfe's report that the scheme for navigating the Godavery was a mere pretence to obtain the support of Government for their general concern. I wish somebody would take the trouble to examine their books, as it would then be seen that their efforts to establish a navigation (which they did establish to be practicable downwards for at least six months of the year) cost them, in the direct line and in the branches necessarily connected with it, three lakhs of rupees."

MADRAS SPECTATOR, *June 25, 1855*.—From our correspondent at Hyderabad, dated 17th instant :—

"Orders are issued to the Zemindars whose possessions lie on the banks of the Godavery not to charge traffic with transit duties. I fear they will not be obeyed. They talk of the order as tending to an invasion of their property. They will be encouraged to resist by the example of the Talookdars holding districts on the highroad between Madras, Masulipatam, Bombay and the capital, who, notwithstanding the commercial treaty engaging to abolish all transit duties, continue to charge them, in despite of the repeated orders of the Nizam's Government."

ENGLISHMAN, *April 13, 1860*.—The following is from Hyderabad, dated 30th ultimo :—

"The English Government is now negotiating with the Nizam to obtain land on the Godavery, considerable in length but of small breadth, to facilitate navigation on that river, and to promote irrigation. The Nizam's Government will necessarily look to an equivalent, either in money or territory, for any cession it may make. It is but just that this should be attended to, and the land ceded to us should be valued, not by a dry assessment of its present worth, but of its capabilities and its future value to us. It also appears from a representation made to the Nizam's Government by the inhabitants of Budrachellum that they apprehend a canal which is to be cut above their district will reduce the supply of water in their locality, and throw their lands out of cultivation. An officer is appointed by the Nizam's Government to examine and report upon this case. The English Government would under any circumstances, as it should do in justice, compensate these ryots for the loss they would sustain by the improvements they are carrying out on the river which waters their lands ; but considering the great prospective advantages to their finance which the English Government calculates upon deriving from its constructions on this river, within the boundaries of the Nizam, it is quite impossible that that Government should not of itself make the most liberal compensation. According to international law, a nation constructing works upon its own river is called upon to make compensation to any nation having any rights upon that river which may be damaged by

the construction of those works. The claim in the case of the Nizam's subjects adverted to is the stronger because the works which damage their rights are constructed upon a river their own property."

TIMES OF INDIA, *March 3, 1866*.—The following is from a correspondent who signs A. D :—

"*Booldana Farm*.—Booldana Farm, in Western Berar, is 25 miles south of the railway station Mulkapoor, and has now been in existence for upwards of three years.

"The first aid received was an advance of Rs. 2,000 from Messrs. R. Knight and A. C. Brice, to be repaid if I am at any time able to do so. In 1855 I received donations of Rs. 1,000 each from J. Fleming, Esq., Premchund Roychund, Esq., and Messrs. Ritchie, Stuart and Co., and donations of Rs. 250 each from Messrs. Franjee, Sands and Co., and Messrs. Peel, Cassels and Co., making in all Rs. 3,500.

"I subjoin the results of the investigations which I have been carrying on during these three years ; and first, with regard to cotton :—

"My original hope was that some species of indigenous cotton might be found which would satisfy the requirements of the European market. I have tried nine of the best varieties, and find that their superiority is owing not to their being of a different and superior species, but chiefly to the local circumstances of soil and climate. This is merely negative, but with New Orleans seed I have arrived at some important conclusions. In the first place, the New Orleans plant, which was supposed capable of yielding only one crop, will, by using the right means, yield two, or even three crops. After yielding the first crop, the plants ought to be cut down to within 6 inches of the ground, thus preventing them from exhausting themselves in supporting superfluous wood and leaves during the hot season. The nutriment which would be wasted on this is stored up in the stump and root, from which prolific branches are thrown out for a second and even a third year. This is a matter of great national importance, because it points to a solution of the question whether or not good cotton can generally be grown in India as cheaply as bad cotton. By pursuing the abovementioned system we can cultivate good cotton much more cheaply than bad, because after the first year the expenses are a mere trifle. This will be the chief, and perhaps the only real, inducement to the ryot to cultivate the American species.

"Again, the growth of a 'pedigree cotton' has been commenced. A small piece of land was sown in 1865 with seed selected from the crop of 1864. Re-selection from the produce of this will give 10 lbs. of seed for next season, and a further reselection from the produce of this 10 lbs. may in November next give 300 lbs. of very superior seed. In the course of time there will be a sufficient quantity of seed to be available for general use. This 'pedigree cotton' has not been produced by additional care and expense in the cultivation, but by selecting the seed of those plants which, under the same circumstances as the others, manifested superior vigour and quality.

"These are the principal results at which I have arrived with respect to cotton, but I have extended my researches to other produce, and also to the modification of native implements of agriculture."

TIMES OF INDIA, *March 5, 1866*.—The following is from the same correspondent :—

"The last three years of increased cotton cultivation and high prices are the commencement of a new era in Indian agriculture and the concomitant material prosperity of the country. Wherever cotton has been grown cultivators have become in a position to work without depending on the *soukar*. Formerly their crops were mortgaged for years to come at half their real value, but now they are able to hold them until a fair price can be realized. This, in connection with the opportune Revenue Survey Settlement, has given a new energy to the ryots, who have now the means and the will to enter upon a path of improvement,

if any one will show them one that very plainly commends itself to them. They will run no risks, but they are open to conviction.

"It may be set down as certain that cotton will never be grown again at former prices. If the ryot cannot get double or at least two-thirds more than in bygone days, he will sow oil-seeds and grain instead, as he is sure of a steady market for them. A great desideratum is to provide him with a kind of cotton which, with the same expense of cultivation, will be really worth more. It is hoped that New Orleans cotton, grown as described in a former article, will supply the desideratum; for the quality is better, it can be more easily picked clean than in a dirty state, and the expense and risk of culture as a triennial will be less than that of the indigenous cotton as an annual. Samples of the second year's plants of New Orleans and of the 'pedigree cotton' are lying on view in the rooms of the Chamber of Commerce here [Bombay].

"Whilst cotton was the primary subject of improvement on the Booldana farm, it is not the only one. Improvement has also been sought for in til (gingeelee oil seed), jawaree, and toor.

"*Til*.—The ordinary til of the country is a leafy diffuse plant from 2 to 4 feet high, with from 30 to 60 pods on each plant. In cutting down 20 acres of ordinary til during 1864, two plants were found with a single stem, very few leaves, and thickly studded with larger pods. The seed of these two plants was put aside and sown separately in 1865, on about the eighth part of an acre; careful reselection of the finest plants from the produce of this plot has given enough seed for 10 acres this year. The produce of this, when again selected, will be available for the commencement of general distribution at the close of this year. But if the Booldana farm continues to exist, these processes of reselection will be carried on for several years to come till the finest variety possible is obtained. Til yields the sweetest and purest oil of the East, and even its oil-cake is used as a sweetmeat. It is well worthy of being improved. The new 'pedigree' til yields at least 25 per cent. more than the ordinary til on the same space of ground.

"*Jawaree Millet*.—This is the staple article of food in Western India. Ryots generally take care to pick the largest heads; but their principle of selection is not a sound one, nor is it systematic. A few heads of what may be called 'Mammoth Jawaree' have been picked out from an unusually fine crop on a few acres last year. The multiplication of millet is wonderfully rapid; one of the abovementioned heads yields more than half a pound weight of grain.

"*Toor*.—This pulse, split by grinding to separate it from the husk, is in universal use in Western India under the name of dhal. It is well known that some white toor plants will yield for many years. It is probable that many varieties will do the same, as toor generally has many of the characteristics of a tree. But no one has yet taken the trouble to investigate the subject. It is of great importance, because if a perennial species can be obtained this useful pulse can be produced at half the price, and would form a valuable addition to the diet of the poor. This investigation was commenced last year, and probably this year will throw some light on the subject. All these crops are grown on unirrigated ground."

TIMES OF INDIA, *March 5, 1866*.—We published on Saturday a statement respecting an experimental cotton farm at Booldana, in Western Berar. The idea is not new that by cultivating perennial cotton plants the cost of planting might be considerably reduced; but we think it has seldom if ever been worked out to such distinct success as on the farm at Booldana. In this way it has been demonstrated that, in Berar at any rate, and without special irrigation, American cotton may be grown more cheaply than the indigenous produce. It yields a staple which will always command a remunerative sale in Liverpool, even if "fair Dhollera" were slighted. There seems every probability that the successful experiments of Booldana might be extended and repeated to any extent that capital could be found for the purpose; for the method is now an open secret. Mr. Davidson, the cultivator, appears to have been actuated in his work by public motives to an extent

that is rare enough. He is now appealing for assistance in this enterprise of national importance. He hopes to obtain a very small monthly allowance from the Supreme Government—Booldana being comprised within the Assigned Districts belonging to the Nizam, and administered through Hyderabad by Mr. Yule. With a small stipend to work upon, the Booldana farmer hopes to obtain assistance to extend his experiments, instead of having to sacrifice the whole fruit of his past labours.

It is easy to see what class has the most permanent interest in the furtherance of this design. The native cotton merchants are the class whose occupation will probably be gone at the close of 1867, unless efforts are now made to improve the quality and condition of Indian cotton offered for export. Comparatively few of the English merchants of Bombay are buyers of cotton up-country. They have, in the aggregate, made large commission profits; but it is the native buyer of cotton in the mofussil who has reaped the lion's share of the enormous cotton profits of the last six years. If this class have but ordinary business foresight, to say nothing of public spirit, they will seize every favourable opportunity of altering the character of Indian cotton. Without presuming to speak positively on a technical subject, we venture to refer to these Booldana experiments, especially the pedigree selection principle, as containing what may prove the germs of changes in cotton cultivation of the highest importance to India. Berar, it is true, is now administered from Calcutta *via* Hyderabad, and, if there be any political justice yet extant, must some day be resumed by the Nizam; but commercially, and in virtue of its being intersected by the G. I. P. Railway, that rich province will pour all its surplus produce through Bombay to Europe. The public here, and the Chamber of Commerce more particularly, know well through the efforts of Captain Hastings Fraser and his able letters on cotton cultivation in Berar and Raichore what are the capabilities of those fertile provinces. An opportunity now offers, and that under remarkably favourable circumstances, by the application of a dribble of capital, to start the stream which will add to the wealth of Bombay only a little less than of Berar. Now that the experimental stage has been passed, it seems almost needful that one or two other Europeans should be associated with the gentleman who hitherto has had sole charge of the farm. Any quantity of land might be obtained, and there are many acclimatized Europeans in Bombay who no doubt would be very ready to offer their services should the design be prosecuted on business principles.

TIMES OF INDIA, March 7, 1866.—The following is from a letter signed "ARTHUR DAVIDSON":—

"There are few things so unfairly depreciated as Indian implements of agriculture. Clumsy and ungainly in appearance, they suggest the idea of inefficiency in operation. Accordingly we find that most Europeans who trouble themselves at all about Indian agriculture start with the idea that, before any change can take place for the better, native implements must be superseded by English ploughs, hoes, &c. This is too hasty a conclusion, and is not so sound, perhaps, as that of the ryot who says—'Your machines are suited for your crops and soils, but do not suit ours.' In the clumsy-looking country ploughs, harrows, and drills there is an amount of ingenuity and application of mechanical principles which is quite remarkable, and points to a time far back when the intelligence of the agriculturist was far higher than now. On their principle of traction there is probably greater economy of motive power than on the European principle. Let us look closely at the plough. This much-despised implement, which has been termed 'a crooked stick with an iron point,' is not in action the contemptible thing which it looks. On much of the Indian soil it will work better than the English plough. The action of the latter is first to cut and then to turn over a furrow, and it is essential for this that the soil should be in a state capable of being cut, and presenting a uniform surface for the action of the cleaver. Wherever the soil is in this state, as in a loose silicious or other friable soil, or in a moist soil, the English plough will have a proper field upon which to act, and will far surpass its rival in effect in working and in economy. But in most parts of India, and certainly throughout

the Deccan, the soil during the ploughing season is as hard as brick. The English coulter is powerless upon it, and the whole plough acts simply as a kind of inefficient wedge, breaking, or broken by, the hard-backed clods; it turns no furrow; whereas the native plough, which is only designed to work as a wedge, is made of an efficient form for the purpose, and works in hard ground deeper than the English plough. The great defect of the native plough, however, is that it is made of wood, and where the pole is fixed into the body of the plough the width of it is twice as great as it ought to be. This is at present necessary, in order to make it capable of resisting the immense strain when working in such hard soil, but the undue breadth prevents the plough from penetrating deep enough, unless it is heavily loaded and pressed by the ploughman. Very few men are capable of such severe exertion, and at best the work would be very defective underneath, owing to the distance between the furrows, although it might look well above. Moreover the wooden joint is constantly getting loose and breaking, and the whole plough is such that it cannot be regulated without calling the village carpenter into the field and taking the whole to pieces, which is constantly necessary. A first step towards improvement has been taken by substituting iron for wood at the joints. This can neither get loose, nor is it so apt to break, while it admits of the nicest regulation by the ploughman himself in a moment. The making of these ploughs will even cost somewhat less than the ordinary ones. An ordinary Deccan plough and one of the improved ploughs will soon be on view in Bombay, side by side.

"An improvement on the country drill hoe has been satisfactorily tested at Booldana during the whole of last rains. The improved hoe somewhat resembles the common one, but differs from it in as much as it cleans itself in its progress, which the country hoe does not. Moreover it can easily be worked by women, which is a matter of great consequence, as at the hoeing time men can seldom be spared for the work. This accounts for fields being so full of weeds, and the crops being thereby injured.

"In the abovementioned improvements an attempt has been made to apply the principles of agriculture to Indian practice. It is a mistake hastily to introduce English usages or machinery where the circumstances of the case do not call for them. Gradually it will appear what may be introduced with advantage and what may not. The principles of agriculture are the same everywhere, and if judiciously applied cannot fail to be beneficial. Little has yet been done to improve Indian agriculture, and it is hoped that this humble endeavour to do something in that direction will not be allowed to fall through for want of a little timely support from the public. The sum of Rs. 10,000 will be sufficient to place the Booldana Farm on a permanent basis for the further verification and development of what has been commenced, which, it is believed, will prove of great public importance.

"I beg therefore to appeal to the public for aid to this extent, and shall be happy from time to time to publish anything of interest that presents itself in connection with my operations.

"Donations, which will be acknowledged in the *Times of India*, may be made to the Booldana Farm Fund at the Bank of Bombay.

"Should any gentleman desire further particulars on this subject I shall be happy to communicate with him."

TIMES OF INDIA, August 21, 1867.—Our correspondent writes as follows of his visit to Chikuldah :—

"Having lately visited this hill sanitarium of the Berars I have thought that your readers would like to know something of its scenery and that of the province of Berar. The valley of Berar is, on an average, eleven hundred feet above the sea level, and Chikuldah is two thousand five hundred feet above this plain. The plateau itself is of no very considerable extent, and, though it may be said to be upwards of a mile in length from Gawulgurh on the east till it abruptly ends on the west in a steep declivity, its extreme width is not over four hundred yards, and in places it narrows to twenty or thirty. On the south face it overlooks the valley of Berar,

and though the margin of the hill is irregular there are few deep or sudden indentations in the plateau. To the north, however, it is just the reverse ; here the face of the hill is made up of a number of small spurs, jutting into and overhanging others of less elevation. The area of level ground of these spurs is generally small, not exceeding three or four acres, and for the most part they narrow to a few yards where they are connected with the main plateau, the small necks of land in some instances dipping somewhat below the general elevation. The sides of these spurs are exceedingly abrupt, and excepting in a few places offer no facilities whatever for a descent into the lower plateau ; they present much the appearance of small promontories connected with the mainland by narrow and depressed isthmi. These spurs are the favourite sites for houses, and have nearly all been built upon ; and though in many instances the buildings strike the eye as being but a couple of hundred yards apart, to approach one from the other necessitates a *détour* of perhaps over a mile, the dip between the two being too precipitous to admit of its being crossed. One of these sudden breaks in the plateau situated near the western extremity, where there are no buildings, is so narrow, its sides so precipitous, its mouth towards the Aanjurah so nearly closed, that on the brightest day the gloom within is so profound that the eye cannot penetrate from without its hidden mysteries. On the whole, the aspect of the place is most forbidding, and so deeply are the natives impressed with the obscurity of the place that they have named it the 'Undereh Korah' (the vale of darkness), and can hardly be persuaded, except when backed or led by Europeans, to penetrate into its dark, unhallowed depths. The sides of this 'Korah' are composed of masses of dark granite rock, between which the jungle grows in the utmost luxuriance, feeding as it does on the rich soil washed down from above, and the decaying vegetable matter which accumulates year by year about its roots. The 'Khud' itself descends at least three hundred feet, the entrance from below being nearly closed by two large masses of rock which form a rough, uncouth, though natural portal. The house occupied by my host is on the extreme north-eastern spur, and the nearest to Gawulgurh as the crow flies, though by no means so by the practicable road. It projected well out from the face of the hill, and commanded one of the most lovely views conceivable. Towards the west, the hills, though lower than Chikuldah, rise one above the other, each range of a deeper and more intense blue, as distance renders its character less distinct, while those in the foreground, with their changeful foliage and varied hues, make, by their contrast, still more exquisite the deep azure of the background, which at length, blending with the horizon, becomes well-nigh lost in space. And when it is considered that these hills, which rise one over the other in irregular and broken lines, like masses of clouds driven one before the other in a storm, are seen between two lofty mountains, rising one on either side and framing the picture, some idea may be formed of the exquisite beauty of the entire scene. As a background to this view lies the fortress of Asseerghur, and at its feet and nearer the spectator glides the Taptee river. If one looks to the right on the one side is a background melting into space, and fusing its misty lines with the bright blue of the sky above ; on the other, Nature, ever beautiful, puts on another garb, and presents herself in more distinct but scarce less picturesque array. Looking straight in front there is the mountain side to charm the eye. What varied scenery it presents to view ! Here the dark and frowning precipice, pierced with a thousand fissures, as though the hard and huge rock had cracked and split under the influence of inordinate heat ; then looking up one sees the pleasant lawn-like slope, green as the young grass in spring, which creeps the rough rock below, and which, secure in its firm, strong basement, seems to smile in happy security on its rugged pediment. Mark, too, the litheness of the forest trees which fringe its apex, and how graceful the forms they assume as they bend to every passing zephyr, and the bright flowers which, bursting through the green grass and out of the rich soil beneath, opening their petals amid sweet scents, add bright gay hues to the already charming scene. Look below, and there, in the lights and shadows reflected from the surrounding hills, nestles the beauteous Aanjurah, the rich dark green of its numberless mango

trees contrasting so agreeably with the emerald hue of the grass beneath them. Can home present a more charming scene? Can England give us anything more tempting to look on?

"The view of the valley of Berar, which lies stretched at our feet, is equally charming. The soil for the most part is black in colour, very adhesive this weather, but during the hot weather becomes either baked to the consistency of a sun-dried brick, or reduced to a fine impalpable powder. Nearer the hills, and in some localities where the ground is much broken by rocky excrescences, the soil assumes a reddish tinge, and is lighter, more porous and friable than the black soil; it consists of alumina, oxide of iron, and manganese, but contains very little lime. Decayed vegetable matter, portions of plants and dead leaves washed down from the hills, form the chief parts of its organic matter. It is soil of this description, and which much resembles that of some parts of Georgia in the Southern States, that I believe the English settler would find best adapted for the production of exotic cotton; while the black soil, under his careful supervision, might be made to produce a far superior staple than that generally derived from the indigenous seed. It is on these plains, or in valleys but a little elevated above them; within the hills, that the settler should come to cultivate cotton; and while there are sites available for tea or coffee plantations, I believe for cotton no land in the interior presents so many advantages as the valley of Berar in contiguity to the southern slope of the Sautpoora hills. The valley of Berar, even in the hot weather, is a picturesque sight from the hills above; the very aspect it bears is one of wealth, comparatively speaking, presenting to the view so little jungle and such a breadth of culturable land. One of the most pleasing features is the prevalence of large *trees* of mango trees. The villages generally lie embedded in a forest of these valuable trees, and near Ellichpore there is a garden known as the "Lakh-land," which derives its name from the hundred thousand mango trees it is said to contain. Sugar-cane, a most profitable crop, is raised in Berar in considerable quantities. The water used for irrigation purposes is generally obtainable from within ten to fifteen feet of the surface, and is raised by means of the usual leather bucket, a rope running over the wheel, and attached to a pair of bullocks. Spice is grown around Ellichpore, especially cardamoms, from which spice the city derives its name. 'Elaichee' hemp is another product of the valley, to which the settler might with advantage turn his attention, for with improved cultivation and appliances for producing the fibre from the plant, with proper screws for pressing and packing, it, a good return might be secured. The decrease in bulk would alone considerably reduce the present charges for transport. The climate from October till about the 15th of March is all that one could desire. During these months the settler would hardly care to reside upon the hills, but from that time until the end of June the heat is excessive, and the nights oppressive in the extreme. During the day a strong breeze blows hot as from a furnace, but the tatties make it bearable in doors; but at night not a breath of air stirs, and the heat becomes so insufferable as to prevent one from sleeping. It is at this time the settler would so enjoy his mountain home, nor would he have occasion often to leave it. The monsoons generally commence about the 20th of June, continue for ten days or a fortnight, and then hold off for fifteen or twenty days. This cessation of rain is the time employed in ploughing and preparing the fields for seed. Just before the first fall of rain is expected, manure is spread over the ground, and, when the *chota bursat* is over, this is turned over with the plough. It has this advantage, that the richness of the manure is in a measure washed out, and pretty equally distributed over the land. It seldom answers in India to plough deep; the light one-horse plough as used in England is therefore the best adapted to the cultivation in Berar. There are many modern appliances in general use on farms in England and America which the settler would find the advantage of on an Indian farm, but it would be absurd to encumber himself with anything of the kind until he had fixed upon a site for his grant, had made himself thoroughly acquainted with the nature of the soil on the various lands, and by such knowledge had determined on the crop he would produce. One thing of course the settler must never lose sight of—that in producing

crops of the description raised by natives he can only hope to compete with them by bringing superior knowledge of the properties of the various soils on his farm into play, and by tillage suited to their requirements cause them to yield crops, both as to quality and abundance, far above those his native neighbours can make their fields produce. The native's mode of life is so inexpensive, his requirements for food and clothing so few, that the smallest return the earth yields for the labour employed on it will suffice for all his wants. He can therefore always undersell his far more expensive European neighbour. The European must make the earth yield him her richest crops, or he will scarcely succeed as a farmer of land himself, though he may, by granting leases of his estate to native cultivators on easy terms, with the proviso that they cultivate their grants, or a portion of them, under his supervision, with such crops as he requires, at certain fixed rates payable by him. In this latter case the settler should keep a home farm for raising seed alone with which to supply his tenants, and by this means he will ensure abundant crops of finer quality than if he allowed them to take for seed grain indiscriminately gathered from the field's produce. No more fatal mistake can be made than by the European imagining he can compete with the native on his own terms. The cotton agencies in the province have failed from this cause, as the natives have undersold them, and have taken advantage of the rise and fall in the markets."

BOMBAY GAZETTE, *January 31, 1873*.—The following is from our correspondent at Chandah, dated 26th instant:—

"I must again plead the dearth of news for not writing earlier. The mining operations are temporarily closed, and we have been sadly occupied in quarrelling amongst ourselves. The Government feel bound, at least as a matter of policy, to do their utmost in developing these works, and yet from gross mismanagement the department was slowly drifting into chaos. One of the European employés died early in November of acute dysentery, brought on, as the doctor states, by intemperance and bad living, and the other refractory subordinates, interpreting the latter term to mean starvation, have raised such a 'hue and cry' as might have startled even the energies of a dormant Government. There can be no doubt that the primary cause of death in this instance was excessive intemperance, but it is unfortunate that the Nizam should have laid himself open to blame in allowing the salaries of his servants to run so long into arrears. On the other hand the derangement of the accounts of the Coal Fields Department previous to Mr. Johnston's departure, and the strange conduct and violent recriminations among the members themselves must have taxed the utmost patience of the Government, who, although dissatisfied that the much-talked-of returns lie still *in statu quo*, are yet disposed to yield every facility for the development of these works, but are crippled in their best intentions by the want of harmony and due subordination among the several employés. Unfortunately, too, the covenanted miners from England, who were a really respectable class of men, have returned home; and the present individuals, on whom these works depend, belong to that class of people who are so frequently imported from New Zealand and Australia. In fact this is but another phase of an English strike, only of a lower type, and as matters have already reached their crisis they must now veer round to right themselves, for the Government have firmly resolved to break up and remodel the department, rather than lose so much valuable time and money in acrimonious bickerings. Indeed, these gentlemen should have already been sent to tramp through India, were there not a show of reason on their side, from the large arrears that were due to them, which in some cases amounted to as much as seven months' wages. In the mean time the works are simply confined to borings, which are being pushed on as rapidly as possible, and will extend from the banks of the Pain Gunga to the Chinoor and Elgundul districts. Further, the superintendent of these works has been transferred, and arrangements have been made to prevent the recurrence of such a lamentable mismanagement in the financial arrangements of this department. The Government have also secured the services of a mining engineer, and workmen

from England, so as to render themselves more independent of the people at present at their disposal.

"The lead ore which was found in the bed of a nullah by Mr. Feddon, of the Geological Survey, has turned out to be very rich in silver, containing 38 ounces to the ton. The Government are very anxious to discover the veins, which are supposed to lie in the metamorphic rocks in the hills above Edlabad. Mr. Feddon suggested to search the hills to the west of Edlabad and to the back of the Ramghir range."

BOMBAY GAZETTE, *February 3, 1873*.—A small quantity of coal obtained from the pits recently sunk at Sasti, near Chanda, in H. H. the Nizam's territory, have been experimented upon by the P. and O. Company's agent at Bombay, with a result that has far exceeded the most sanguine expectations. The agent, we believe, has reported that on comparing the Sasti with Newcastle coal the consumption of the former for a given period only exceeds that of the latter by 22 per cent., in quantity, and when it is considered that the specimen experimented upon was by no means the best obtainable from the Sasti pits, and that it had for some months previous been exposed to wind and weather without any protection, the result is a highly satisfactory one. The exploring party at Warrungul have come upon an excellent seam of coal at a place called Singareny. This coal is stated to be of a far superior quality to the Sasti crops, and will no doubt compare still more favourably with Newcastle. A specimen will shortly be sent to the P. and O. agent at Bombay, as well as to the Gas Company, for practical experiment.

BOMBAY GAZETTE, *February 14, 1873*.—An "Exile," writing about the "Future Black Country of India, Kummawarum," says :—

"This coalfield is a continuation of the carboniferous system that runs along the valleys of the Wurdah and Godavery towards Chinoor, Dooniagoodium, Kummawarum and Singareny. The whole, however, is by no means regular, and presents the same broken features that generally characterize the coalfields throughout the world. The country all along is difficult to prospect in, being covered with heavy, impenetrable jungles, but in the vicinity of villages and larger nullahs the older rocks are occasionally met with, which leads me to presume that the whole of this tract consists of a series of coal beds lying in *pockets* or *cups* of a greater or less extent. This feature is at present met with in the Rajore and Sasti coalfield, and is attributable to subterranean convulsions in some former period of the earth's history subsequent to the carboniferous age. The Kummawarum coalfield was first known to the Nizam's Government early in 1871, and an amusing story is current regarding its discovery. A certain *Koonbee* going from one village to another found a piece of coal in the bed of a stream, and having heard that the Government offered a large reward to any party or parties discovering any new coalfields in their dominions, travelled up the stream on an exploring expedition. The man pretended to be suffering from some internal malady, and going to the several villages along its banks presented the piece of coal to the villagers and stated that he was in search of this particular medicine, that could alone cure him of his disorder. In this manner he travelled to the village of Kummawarum, and for a trifle soon elicited the information that large quantities of the same medicine were to be found in the vicinity. Of course the *Koonbee* visited the site, cured himself of his malady, and returning to his village informed the Tahsildar of Kunthe Conda of the discovery that he had made. But a *Koonbee* is too insignificant an individual to urge pretensions to so high a claim, and for the chance of a bonus of Rs. 2,000 and one step promotion on his grade the Tahsildar thought that it would be better to discover the field over again. Certainly a little meandering and prospecting was necessary, but then the Tahsildar arrived in due time at Kummawarum, took formal possession of the coalfield, stamped the coal in several places with a seal, planted a flag, carved his name on the adjacent forest trees, and placing several watchmen to guard the new-found treasure returned to Kunthe Conda and reported the matter to Government. In June following the Government directed

the District Engineer of Wurrungul to visit the site in conjunction with the Tahsildar and report on the coal. Unfortunately the Tahsildar did not start in time, and the Engineer, glad in his turn to make a semi-discovery of the whole affair over again, was happy to 'report favourably' with regard to his investigations, and found no difficulty in obtaining the necessary assistance without the Tahsildar's presence, nor in erasing the carvings and substituting his own name on the adjacent forest trees. The report on the coal goes on to state that the outcrop resembled 'one jetty mass without any fissures, and interlaced by no concomitant strata;' that four wild elephants should be killed; that the right of original discovery should rest with villagers of Kummawarum; and that Rs. 500, which were given to the Tahsildar to be expended on the site of the outcrop, should be handed over to the D.P.W. After this I think I had better quote the gentleman's own words, which I happen to have by me, at least with reference to the coal. Leaving out the wild elephants, &c., he says, 'The coal formation is so clearly discernible, and is so extensive, that there is no more doubt of its existence in the spot indicated. It crops out in the bed of a small stream, the local name for which is 'Thondrala Vaju,' a tributary of the Godavery, but marked on the map as 'Pangady Vag.' It is situated about six miles from the village of Kummawarum in a valley between two low hills. The coal stratum, as far as it could be perceived, resembles one jetty mass without any fissures, and interlaced by no concomitant strata, extending over 1,250 feet in length and from 20 to 30 feet in thickness. On the south and east sides of the stream the seam marks its appearance from under a bed of sandstone, but its other edge gets buried on the west side of the bank under a thick alluvial cover, and evidently runs below the hill situated on that side. Throughout its whole length in the stream the stratum continues regular in parallel layers, and preserves its angle of inclination or dip to the horizon of about 45° west. On the north or lower part of the stream, and just as it takes a sharp turn, the coal again buries itself in thick alluvial soil and runs along the foot of the hills, where it may be traced by pitting. The coal region in question seems to be on a considerable elevation to the country around Wurrungul, which makes me suppose that the village of Kummawarum must be a comparatively cool and healthy place, and well adapted for locating any establishment the Government may anticipate maintaining for working the coal. This is the nearest village practicable to the coalfield, and is about 65 miles from Wurrungul by a most circuitous route. The road to it from Wurrungul is very bad and, in fact beyond the Pakal Lake merely a pathway exists through a thick bamboo jungle, and impassable by ordinary carts.'

"To remark on the above, the very high angle of dip and the reputed healthiness of the locality are, I fear, more of fiction than of fact.

"Early last year some attempt was made to construct a fair-weather road from Kummawarum to the site of the coal, and a working party was also sent to experiment in borings. The results taken in three different places show 9 feet, 6 feet and 3 feet thickness of coal severally, while in two others they met with no coal at all. Early in July the party returned to Hyderabad—most of them being down with the fever,—and took several specimens with them, and also a small quantity of coal from the outcrop. The same party has now been ordered up to Singareddy.

"The quality of the coal of Kummawarum is decidedly good, and at the exposed surface the specimens are very compact, of a dull slaty appearance, but burning with a good red flame and leaving a small residue of clear white ash. The coal lower down has a bright glossy appearance, very hard, and possessing all the qualities of anthracite. The old inhabitants of Kummawarum state that in their early days there was no exposed surface, and that the superlying stratum was denuded by the impetuous flow of the mountain stream. The Kummawarum coalfield is about five square miles in extent, and I am of opinion that there should be more of these deeper in the heavy jungles, as the country all along from Pakal to Kummawarum presents favourable indications of the presence of coal. In the former place we meet with the Vindyan series, and it was by tracing these out and making local inquiries that Mr. King, of the Geological Survey, fell in with the Singareddy coal-field.

"Some time ago the Nizam was desirous of redeeming a portion of the jungle towards Pakal by converting it into a penal settlement for life convicts, and with this object about half a lac of rupees was spent during the last five years in building a Pakal jail that was to consist of twelve blocks of mud buildings surrounded by a strong heavy wall. The water of a magnificent reservoir of water called the Pakal Lake, about 30 miles in circumference when full, was to be utilized for purposes of irrigation. The jungles are covered with magnificent timber, such as teak, ebony, blackwood, &c., but the fever of the place is said to be deadly, and the civil authorities strongly objected to the inhumanity of exposing the convicts to so miserable an existence. The buildings were very slowly erected, as the workmen declined to go there for more than six months in the year, and much scandal was attached to the D. P. W. in the management and construction of these works. In one instance, during the absence of the workmen, several thousands of monkeys felt disposed to occupy these premises, and when the workmen returned they found to their disgust that the inquisitiveness of our Darwinian friends would not leave one stone upon another unturned. I believe that the work is still going on, and that it will be shortly completed."

MADRAS SPECTATOR, *June 10, 1873.*² *Coal in the Nizam's Territory.*—The last published volume of the Records of the Geological Survey of India contains two interesting reports by Mr. W. King on the recent coal discoveries in the Nizam's dominions. The country examined by Mr. King lies to the west of the Godavery river, generally along, but a little to the south of, the 18th parallel of north latitude. He commenced his survey at Paluncha, in the Khummumet talook, and directed his course to Narsimpet, in the Pakhal talook, some thirty miles to the east of Hanamkonda. It was along this route that Mr. King's observations were chiefly confined. The country is generally very jungly and very sparsely inhabited; the inhabitants belonging to the "Koi" tribe found in the Bustar territory, to the east of the Godavery. The general appearance of the country is thus described :—"The general elevation is about 1,000 feet above the sea, and the surface of the country is rather rugged with low ridges. It is impossible, unless clearings were made, to get a view anywhere to give one a fair idea of position. I got on one small hill which gave a view over a country of apparently endless tree jungle, unbroken by any distinct feature, the long range of the Vindhya's to the south-west of Goondala being only recognizable." This "weary waste" of jungle is crossed by two or three tracks used only by wood-cutters' carts. It will be seen from this description that the coal country is wholly destitute of roads, and but poorly supplied with labour, so that the chances of working the coal-fields profitably would seem at present to be rather remote. Kamarum, in the Pakhal talook, is the name of a village near which coal was found some time ago by some of the Koi men, to whom the Nizam's Government very judiciously gave a reward of Rs. 2,000, which will no doubt prove a great stimulus to further discoveries. Mr. King visited Kamarum, but after surveying the country around did not form a high opinion of its coal-bearing prospects. The coal-field is very small and ill-placed in every way for its development. At the most liberal calculation the field is not more than 156 acres in extent. It might possibly yield about 2½ million tons, of which about one-half would be good coal, equal to that found in the Wurdah fields. Assays of this coal will be made hereafter by the Geological Department, but the practical experiments conducted on the spot are rather encouraging. These were made in an ordinary tent fire. Mr. King writes :—"With merely a starting of a few sticks of wood there was very soon a good blazing coal fire, which burnt with a brilliant flame for a long time. It then quieted down into a red-hot fire with a pale low flame, lasting so for two or three hours; in the morning the fire was still in existence, but most of the burnt fragments still retained their general form in a heavy light-coloured ash. For such a fire four or five lumps of coal each as big as an English brick were used. The coal can be quarried in large lumps which will bear rough carriage. The fragments used by me were just dug out from the bed of the river, where the coal must be much deteriorated from being exposed to the atmosphere." The

disadvantages of the locality of the field are, however, very great. The outcrop of the coal is for the greater part of its length either in the bed of the small river Pangadi Vagu or close alongside it. The pools of water in the river generally lie on the seams ; and it is extremely probable that, even in an exceptionally dry season like the present, the seams are full of water from outcrop to full depth. The difficulty of getting at the coal would consequently be great. Moreover, in the present condition of the jungle, work could only be done from early in January to the end of May, as the country after that time is either highly feverish or rendered impassable owing to the rains during the rest of the year. Kamarum, however, is not the only place whence coal may be obtained. Mr. King found coal-bearing rocks in several places along his line of route, and particularly mentions the village of Mootapooram—situated at the crossing of the stream Kinnesawmi Vagu, near the confluence of the Jaleru stream—as a place where trial borings might be made with advantage, “ if it ever become necessary to search for coal in this wild region.” There can be little doubt, we imagine, about the necessity for this search being felt one of these days. That the region in which the coal exists was not always so wild and deserted as it is now is proved by the existence of the Pakhal Tank, a magnificent “ public work ” constructed sixteen hundred years ago. The bund of this fine tank is nearly 2,000 yards long, and is thrown across a river in much the same way as Mr. Melvor attempted to construct his bund on the Neilgherry Hills. Though there was no rain to speak of last season, yet the Pakhal Tank contained a beautiful and wide-spread sheet of water when Mr. King saw it. But the country all round is deserted. On every side there is far-stretching jungle ; even below the tank bund there is the thickest and densest jungle, only broken here and there by a few patches of rice cultivation. There is not the population even in the country below the tank to make use of its waters ; and no careful means are taken in these days of Mahomedan rule to conduct the water to a part of the country where the population is more numerous. In the old Telinga times, Mr. King remarks, when Warrangul was one of the great centres of the Telugu people, “ there must have been something more stirring in the way of human life than there is now in this desolate region of wide-spread jungle.” What has been may be again, and we notice that the Nizam’s Government are already contemplating the construction of a railway from Warrangul to the Coromandel Coast. If the coal-fields should prove as valuable as is anticipated by the geological authorities, there can be little doubt that the construction of a light railway will be warranted even on financial grounds.

After surveying the Kamarum or Pangadi Vagu coal-field, Mr. King was fortunate enough to discover another field on his own account. The new field is situated about 23 miles north-north-east of the town of Khummut, and thirty-six miles east of Nellycodoor, the tahsil village of Kundyconda talook. The southern extremity of the field is about four or five miles east of the large village of Singareny, after which village the field has been named. Mr. King describes the field as “ a narrow irregular patch of the plant-bearing series of rocks, about eleven miles long and from one to two miles in width, giving an area of about nineteen square miles, though at the same time the coal measures are only supposably about eight square miles in extent.” Coal was only found in one spot—that is, in one of the stream pools, where, after long and apparently hopeless searching, Mr. King saw “ the upper edge of a seam showing just above the mud and water.” Even had the seam not been found, the locality would have been recommended for boring experiments, simply because so many coal-bearing rocks were to be seen in the neighbourhood. The thickness of the seam has not yet been determined, but a specimen of the coal extracted only a few inches from the exposed surface burnt brightly, and left a soft powdery ash. It promises even to be better coal than that found at Kamarum. Until borings have been made, it is not possible to estimate with any degree of accuracy the quantity of coal existing in the Singareny field, but Mr. King is inclined to believe that the yield will be prolific, while he asserts that the coal can be got at and carried out with much more ease than at Kamarum. There is no hilly country to be got over ; the jungle is not so thick, though, the

field is completely covered by thin tree forest ; the villages are more frequent and populous ; there are well-marked tracks in several directions, and the distances to the towns of Khummumet and Kundyconda are trifling. Altogether the Singareny field promises to be a good one, and we should hope that the Nizam's Government will lose no time in having the necessary borings made, with a view to determine whether it would be worth while to work the seam.

The geological explorations in the Nizam's territory are so far satisfactory that they show beyond all doubt that a good serviceable coal is to be found in various localities, especially in the neighbourhood of the rivers and streams. These localities, however, are, as a rule, beyond the influence of highways and towns ; and the question therefore arises whether, after all, the coal-seams can be worked profitably : that is, whether the coal could be laid down at places where it is wanted at prices that would enable it to compete with foreign coal. This is a problem which will doubtless receive every consideration from the Nizam's Government, which has the strongest possible interest in its solution. It is no longer a question about the existence or non-existence of coal. Even Dr. Oldham has been completely silenced on this point, and must bow the head and humbly cry *peccavi*. As yet no coal has been found in any part of the Madras Presidency, but surely after all that has happened during the last three years Colonel Applegath and his friends must begin to feel hopeful. Certainly the Colonel's much-disputed "find" at Jaggiapet had the effect of stimulating the search for coal elsewhere—a search that has been attended with most satisfactory results. Under these circumstances Colonel Applegath's services as a coal-explorer ought not to be forgotten. Even the geologists now allow that what Colonel Applegath found at Jaggiapet may have been coal, though it was probably brought down by some stream from the interior, and not extracted from the bowels of the earth in the neighbourhood of Jaggiapet.

BOMBAY GAZETTE, *July* 31, 1873.—A correspondent writes of the Nizam's territory as a field for enterprise :—"H. H. the Nizam's dominions present a fine field for the operations of capitalists and speculators in developing its resources, and also at the same time getting a good return for their capital, and no doubt the Nizam's Government would gladly aid any *bond fide* enterprise. At present there are scarcely any manufactures worthy of the name, and scarcely any export trade. This may be attributed to ages of misgovernment and oppression, but now that a regular and strong government is established, and peace and order prevail throughout the land, a time for the establishment of manufactories and a large trade is come. Its resources of coal and iron are being developed, coal being discovered in its eastern districts from Sastee to Khummumet, and also in its western districts about Lingsagoor, by last accounts. Iron was about in the vicinity of the coal-beds and also limestones. Then Government contemplate the construction of a railway to connect both the Wurdah Valley and the Khummumet coal-fields with Hyderabad, and from thence there will be the State Railway, now being completed, and the G. I. P. Railway, to convey both coal and iron to the coast.

"One source of investment might be the establishment of collieries and iron smelting works. The right of mining would be obtained from the Government on payment of a royalty.

"Spinning and weaving factories might with profit be established in some of the large towns, where labour would be easily procurable ; this would be a great boon to the indigent poor, who at times find it hard to obtain employment, and who are living from hand to mouth. A spinning and weaving mill company would be able to monopolize the clothing trade, as its cloth could be sold cheaper than that imported, which is subject to two duties, one at Bombay and one at the Nizam's frontiers, besides freight and rail charges. A soap and oil factory should, I believe, pay. Oil seeds are plentifully cultivated in most of the districts, and pearl and potash could be easily manufactured from the *Palas Papra* tree, which is usually covered with scarlet flowers in February and March. Many districts are overgrown with this tree, and it is a great nuisance to the farmer, as it is

difficult to clear. Its wood is useless as a timber, but its ashes yield a strong alkaline lye.

"Besides this, the fibre from the roots of the Palas Papra forms a strong durable rope, well adapted for wet work. I think the fibre could be spun and woven into gunny-bag cloth, like that made from jute fibre, as it is long, smooth, and silky in texture. It only requires fit machinery to turn it to account, both for cloth and for paper making.

"To the manufacturer of sugar there are great advantages in existence. No new fields of cane would require to be planted, needing outlay and care; Nature has already provided the means in the *Send Bunds*, which cover great stretches of country in all districts where tank irrigation exists, the embankments and most of the land below being covered with these trees. The *sendy* tree is a species of date palm. The fruit is of no value, but a fair revenue is derived by the Nizam's Government from the farm of the abkarry—the right of selling and extracting the sap or toddy, which is largely consumed by the people. It is not generally known that this sap from the sendy tree is rich in saccharine matter, and that a great portion of the sugar exported from Bengal is made from this juice. From experiments made by myself, I found that two quarts of fresh sap yielded about 6 oz. of jaggery or molasses, by boiling down and evaporation. My experiments were conducted without proper apparatus, but the sap or neera was extracted from a single cultivated tree growing in my garden. I say cultivated, because the tree chanced to grow in a vegetable bed, where its roots had the benefit of the large quantities of manure used for the vegetables. I had this tree tapped, and found the neera too sweet to drink, and it struck me that this juice could be turned to account, so I tried, and by boiling it down made molasses, almost crystallized, which I could use for coffee. This tree yielded for over three months. Had I capital of my own I would not hesitate employing it in trying to develop this manufacture, and I would be happy to aid any one wishing to do so, as I am confident that the profits would be large. Not only sugar could be made, but rum could also be distilled from the refuse, and these both would command a good sale. This would be a very paying business, and would not need a very large capital or plant. There are plenty of *Send Bunds* in deserted villages, from which no revenue is obtained, and these might be rented."

TIMES OF INDIA, August 14, 1874.—On the right bank of the Godavery, some eight or ten miles below the town of Budrachellum, and about four miles from the bank of the river, extensive boring operations have been carried on under the supervision of Mr. Heenan, Superintendent of the Nizam's coal-fields. In one bore-hole a good seam of coal was struck at about 320 feet from the surface, also the thinner seams at a lesser depth, of a fair quality of coal. The Singareny coal-field has also been explored by borings, and it is found to contain four very extensive seams, which are superior to any yet found in India. In one of the borings the lower seam was found to be over forty feet in thickness. Mr. Heenan has put a shaft down to the upper seam, and a large quantity of coal has been excavated, which is on its way to Bombay in order to be compared with English coals.

TIMES OF INDIA, August 24, 1874.—A statement has been quoted here from your paper that a native banker had offered to lend the Nizam £9,000,000 sterling to enable him to pay off the British claims and to recover the Berars. I have authority for stating that a well-known and very influential London firm has offered to procure the Nizam a loan of £10,000,000 on very favourable terms, and that certain propositions have been made to Sir Salar Jung. It is understood by these financiers that the Nawab contemplates extensive public works, and is particularly anxious to open up the Chandah coal-fields. Native bankers have nothing to do with this loan, and, from what I know of their powers, it would take all the sahookars in the Mogulai to form a syndicate capable of finding either nine or ten crores of rupees.

TIMES OF INDIA, March 31, 1876.—*The Diamond in India.*—Capt. R. F. Burton has sent us the following letter from Kurrachee, dated March 20:—

“It would be unpardonable to quit Golconda without a word concerning the precious stone which in the XVIIIth century made its name a household word throughout Europe, and also without noticing the great diamond whose inauspicious name, Bala (little) Koh-i-nur, I would alter to ‘The Nizam.’ It is not a little peculiar that professional books like Mr. Lewis Dru Lafait’s ‘Diamonds and Precious Stones’ (London: Blackie, 1874), which record the life, the titles, the weight, the scale, the size and the shape of all the historic stones, have utterly ignored one of the most remarkable. Mr. Harry Emanuel does not neglect even the Nasik diamond, which fetched only £30,000: we must, by the bye, convert, for intelligibility, his ‘Mahratta of Peshawur’ into the ‘Peshwa of the Marathas.’

“The history of the Nizam diamond is simple enough; like the Abaïté, and unlike the Koh-i-nur, its discovery cost at most a heartache, and did not lose a drop of man’s blood. About half a century ago it was accidentally found by a Hindu Sonar (goldsmith) at Narkola, a village about 20 miles east of Shamsabad, the latter lying some 14 miles south-west of the Lion City, on the road to Maktal. It had been buried in an earthen pipkin (Koti or Abkhorah), which suggests possibly that it had been stolen, and was being carried for sale to Mysore or Coorg. The wretched finder placed it upon a stone, and struck it with another upon the apex of the pyramid. This violence broke it into three pieces, of which the largest represents about half. With the glass model in hand it is easy to restore the original octahedron. The discovery came to the ears of the celebrated Diwan (Minister) Rajah Chundu Lal, a friend of General Fraser, who governed the country as Premier for the term of 42 years. He took it, very properly, from the Sonar, before it underwent further ill-treatment, and deposited it amongst his master’s crown jewels. Lately Messrs. Aratoon, of Madras, offered to cut it for three lakhs of rupees—a modest sum, considering the responsibility and the labour such operations involve; but the figure was considered exorbitant. A M. Jansen, of Amsterdam, who died about a twelvemonth ago, volunteered to place it in the hands of Messrs. Costa, who certainly did not improve its big brother. This offer was, naturally enough, declined. Let me hope, however, that it will not be cloven into a plate of flat slab, *more Indico*.

“The stone is said to be of the finest water. An outline of the model gives a maximum length of 1 inch 10·25 lines, and 1 inch 2 lines for the greatest breadth, with conformable thickness throughout. The face is slightly convex, and the cleavage plain, produced by the fracture, is nearly flat, with a curious sloop or groove beginning at the apex. The general appearance is an imperfect oval, with only one projection which will require the saw: It is not unlike a Chinese woman’s foot without the toes, and it will easily cut into a splendid brilliant, larger and more valuable than the present Koh-i-nur.

“Yet I can hardly wonder at this stone being ignored in England and in India, when little is known about it at Hyderabad. No one could tell me its weight in grains or carats. The highest authority in the land vaguely said ‘about two ounces or 300 carats.’ The blacksmith who made the mould was brought to me, and the rascal showed a bit of wood shaped much like a clove of orange. Finally I was driven to accept the statement of Mr. Briggs (l. 117):—‘Almost all the finest jewels in India have been gradually collected at Hyderabad, and have fallen into the Nizam’s possession, and are considered State property. *One uncut diamond*

* Our diamond weights are as follows:—

16 parts = 1 (diamond) grain = $\frac{1}{4}$ hs grain Troy.

4 diamond grains = 1 carat = $3\frac{1}{4}$ (3·174 grains Troy).

The Indian weights are—

1 Dhan = $\frac{1}{16}$ grains Troy, in round numbers half a grain.

4 Dhan = 1 Rati = $1\frac{1}{8}$ grains Troy.

8 Rati = 1 Masha = 15 ” ”

12 Mashas = 1 Tola = 180 ” ”

The “ounces” in the text probably represent “tolas,” certainly not Troy ounces of 480 grains.

alone of 375 carats is valued at thirty lakhs of rupees, and has been mortgaged for half that money.'

"Let us now estimate the value of the Nizam's diamond. For uncut stones we square the weight ($375 \times 375 = 140,625$) and multiply the product by £2, which gives a sum of £281,250. For cut stones the process is the same, only the multiplier is raised from £2 to £8. Thus, supposing a loss of 75 carats, which would reduce 375 to 300 ($300 \times 300 = 90,000 \times £8$), we obtain a total value of £720,000.

"Allow me briefly to compare the Nizam's diamond, uncut 375 carats, cut 300, with the historic stones of the world. The list usually begins with the Pitt or Regent, the first cut in Europe. When the extraneous matter was removed in unusual quantities, it was reduced to $136\frac{3}{4}$ carats, valued from £141,058 to £160,000. The famous or infamous Koh-i-nur originally gauged 900 carats; it was successively reduced to 279 or 280 (Tavernier) and to $186\frac{1}{4}$ ($= £276,768$) when exhibited in Hyde Park; its last treatment has left it at $162\frac{1}{2}$ carats. Then we have the Grand Duke's or Austrian, of $139\frac{1}{2}$ carats ($= £153,682$; the Orloff or Russian (rose cut) of 195 (193?) carats; and the Abaïté, poetically called the 'Estrella do Sul,' Star of the South, weighing 120 carats. The 'Stone of the Great Moghul,' mentioned by Tavernier, is probably that now called the Darya-i-nur: it weighs 279.9-16 carats, and graces the treasury of the Shah. The nearest approach to 'The Nizam' is the Mattan or Laudah diamond, of 376 carats. Experts agree to ignore the Maganza, whose 1,680 carats are calculated to be worth £5,644,800: the stone is kept with a silly mystery which makes men suspect that it is a white topaz.

"And now to notice the diamond-diggings of India, and especially of Golconda, their ancient history and their modern state. I will begin by stating my conclusions. Diamonds have been found in the Ganges Valley: they are still washed as far north as Sambalpur and in the Majnodi, an affluent of the Mahanadi; on the Upper Narbada (Nerbudda), on the line of the Godaveri and on the course of the Krishna. The extreme points would range between Masulipatam and the Ganges Valley: the more limited area gives a depth from north to south of some 5° ($= 300$ direct geographical miles), beginning north from the Central Provinces and south from the Western Ghats, a breadth averaging about the same extent, and a superficies of 90,000 miles. A considerable part of this vast space is, I need hardly say, almost unexplored, and the sooner we prospect it the better. The curious reader will find the limits laid down in the 'General Sketch,' &c., of British India by G. B. Greenough, F.R.S.

"The history of the diamond in India begins with the Mahabharata (B.C. 2100); the Koh-i-nur is supposed to have belonged to King Vikramaditya (B.C. 56) and to a succession of Moslem Princes (A.D. 1306) till it fell into the hands of the Christians. Henry Lord's 'Discovery of the Banian Religion' quaintly relates how 'Shuddery' (Sudra), the third son of Pourvus (Purusha), 'findeth a mine of diamonds,' and engenders a race of miners: this is going back with a vengeance, *teste* Menn. At what period India invented the cutting of the stone we are as yet unable to find out: the more civilized Greeks and Romans ignored, it is suspected, the steel wheel. The Indian diamond was first made famous in Europe by the French jeweller Jean Baptiste Tavernier (born 1605, died 1689), who made six journeys to the Peninsula as a purchaser of what he calls the Iri (hira).

"Tavernier's travels are especially interesting to diamond-diggers because he visited the two extreme points north and south. He began with "Raulconda," in the Carnatic, some five days south of Golconda (Hyderabad), and eight or nine marches from Vizapore (*hodie* Bijapore). In 1665 the diggings were some 200 years old, and they still employed 60,000 hands. The traveller's description of the sandy earth, full of rocks, and 'covered with coppice wood, nearly similar to the environs of Fontainebleau,' is perfectly applicable to the Nizam's country about Hyderabad. The diamond veins ranged from half an inch to an inch in thickness, and the precious gangue was hooked out with iron rods. Some of the stones were valued at 2,000, and even at 16,000 crowns, and the steel wheel was used for cutting. He

then passed on to the Ganee diggings, which the Persians call Coulour (*hodie* Burkalun), also belonging to the King of Golconda. They lay upon the river separating the capital from Bijapur. This must be the Bhima, influent of the Krishna, and the old jeweller notices the coracles, which are still in use. The discovery began about A.D. 1565 with a peasant finding a stone gauging 25 carats. Here, we are told, appeared the Koh-i-nur (900 carats), which 'Mirzimolas' or 'Mirginola,' the 'Captain of the Mogols,' presented to the Emperor Aurangzib. The 60,000 hands used to dig to the depth of 10, 12, or 14 feet, *but as soon as they meet with water there is no hope of success.* Tavernier then records the fact that the king closed perforce half-a-dozen diggings between 'Coulour and Roolconda, because for thirty or forty years the yield of black and yellow had given rise to frauds.' The Frenchman's last visit was to 'Soumelpore' (Sambalpur), 'a town of Bengala, on the River Gowel,' a northern affluent of the Mahanadi. The season for washing the diamantiferous land began in early February, when the water runs clear : other authors make it extend from November to the rainy season ; and the 8,000 hands extended their operations to 50 kos up stream. Gold and the finest diamonds in India, locally called 'Brahmans,' were found in the river bed and at the mouth of the various feeders.

"So far Tavernier. In 1688 and 1728 the well-known Captain Hamilton (New Account, &c., &c.) in his XXIXth chapter, treating of 'Maderass or China-Patam,' describes the diamond-mines, evidently those of Partiál, in the Northern Circars, as being distant a week's journey from Fort St. George, and records the fact that the Pitt diamond was there brought to light.

"The precious stone was practically limited to Hindostan and Borneo before A.D. 1728, when diggings were opened in the Brazil. At first the new produce was rejected by the public, till it found out that many Indian stones from the new world were sent to Goa and thence were exported to Europe. Still the general view was not wholly wrong. The specific gravity of the diamond averages 3.6, and the difference of oxide in the crystallized or allotropic carbon does not exceed a third place of decimals. This, however, makes all the difference in lustre ; and even in England we have lately found out that a small brilliant of perfect water, hung to the ear for instance, is far more effective than a stone much superior in size but inferior in quality. You do not perhaps remember that as far back as 1868 my study of the formation which bears the Brazilian diamonds enabled me to forecast that the gem would be found in a variety of places where its existence had never been suspected. Thus, to mention no others, they were washed in the Cudgegong river near Rylston, New South Wales : the Australian Diamond Company failed, however, probably by bad management, to pay its expenses. It has been otherwise with the South African diggings, which began with the Vaal River : the stones are inferior even to those of the Brazil, yet they have reduced the value of the latter by one-third. When another great revolution or other political trouble shall occur, the diamond will recover its old market price.

"The diamond mines of Golconda," says Mr. Briggs (Chap. VI.), "derive their name from being in the kingdom of Golconda, and not from being near the fort. They are at the village of Purteeali (Partiál) near Candapilly, about 150 miles from Hyderabad on the road to Masulipatam.* The property of them was reserved by the late Nizam when he ceded the Northern Circars to the English Government. They are superficial excavations, not extending ten or twelve feet deep in any part. For some years past the working of them has been discontinued, and there is no tradition of their having even produced very valuable stones."

* "Mr. Maclean kindly drew my attention to the Treaty with the Nizam (Nov. 12, 1766), which cedes to the E. I. Company 'the five Circars or provinces of Elloure (Ellor, north of Masulipatam), Rajahmoudra Siccacole (or Chicacole on the coast), and Moortizanuggur or Guntoor.' The four first named were added to the French dominions by De Bussy. 'These Circars,' we read, 'include territory extending along the coast from the mouths of the Kistna (Krishna) northward to near Ganjour, and stretching some distance inland.' Article No. 14 of the same treaty runs thus : 'The Hon'ble E. I. Company, in consideration of the diamond mines, with the villages appertaining thereto, having been always dependent in H. H. the Nizam's Government, do hereby agree that the same shall remain in possession now also.'"

"This *resumé* is so full of errors that we cannot but suspect that they conceal some design. The historian must have known that the Pitt diamond, one of the finest and most perfect of its kind, was produced at Gáni Partíál, and that the Koh-i-nur came from the so-called 'Golconda mines.' Again, Partíál, on the north bank of the Krishna, some fifty miles from the Bay of Bengal, is only one of many diggings in the vast area which I have before laid down, some being still worked, and the others—prematurely, we must believe—abandoned.

"The student will do well to consult that valuable volume the 'Geological Papers on Western India' (Bombay, 1857), edited by my old friend Dr. Henry J. Carter. Here he will find detailed modern notices of a multitude of mines. John Malcolmson, F.R.S. (p. 6), treats of the diggings at 'Chinon, on the Pennar,' and the Cuddapah mines (p. 6). Of the latter Captain Newbold says (Geological Notes, p. 375 loc. cit.): 'The diamond is found in the gravel beds of the Cuddapah district below the Regur'—the black, tenacious and fertile soils of Central and Southern India. The same scientific officer, who died too early for his fame, describes (p. 67) the yield of Mullavelly (or Malavily), north-west of Ellora, as occurring in 'a bed of gravel composed chiefly of rolled pebbles of quartz, sandstone, chert, ferruginous jasper, conglomerate, sandstone and kankar, lying in a stratum of dark mould about a foot thick.' Both these geologists inferred the identity of the sandstone of Central with that of Southern India from the existence of the diamond at Weiragad, a town about 80 miles south-east of the capital. Malcolmson declared that the 'celebrated diamond mines of Partel (Partíál), Bangnapilly and Panna, occurring in the great sandstone formations of Northern India, as well as the limestones and schists associated with them, exhibit from the latitude of Madras to the banks of the Ganges the same characters, and are broken up or elevated by granite on trap rocks in no respect differing in mineralogical characters or in geological relations.'

"The Rev. Messrs. S. Hislop and R. Hunter, who visited and described the Nagpur mines, object to this assertion, and endeavour to prove that the 'diamond sandstone of the Southern Maratha Country is a conglomerate reposing upon the arenaceous beds, which have *never* yielded the precious stone, nor are there any data to prove that the conglomerate derived most of its materials from that source.' Dr. Heyne contributed an excellent description of the mines of Southern India, especially those of Banaganpilly (p. 689); of Ovalumpilly, 6 miles from Cuddapah (p. 691), and of others on the Ellore district: this experienced geologist concludes—'All the diamond mines which I have seen can be considered as nothing else than alluvial soil.' Major Franklin (Geolog. Trans., 2nd Series, Vol. 3, Part I.), who visited the mines of Pannah, in Baudelkhand, before Victor Jacquemont's day, makes the diamond sandstone between the Narbada (Nerbudda) and the Ganges belong to the 'New Red,' apparently an error; and others have described the diggings east of Nagpur (Central Provinces) as having been opened in a matrix of lateritic grit. Dr. Carter (Summary of the Geology of India, pp. 686-91) connects the 'diamond conglomerate' with the oölitic series and its *débris*, and he offers (p. 688) a useful tabular view of the strata in the mines of Banaganpilly, described by Voysey, and Pannah or Puma, by Franklin and Jacquemont. The most important conclusion is their invariable connection with sandstone.

"Dr. Carter's volume quotes largely from the writings of Mr. Voysey (Journal As. Soc., Bengal; 2nd Report on the Government of Hyderabad), a geologist who maintained the growth of the diamond as others do of gold: he declared that he could prove in alluvial soil the re-crystallization of amethysts, zeolites and felspar. During his last journey from Nagpur to Calcutta he visited the diamond washings of 'Sumbhulpore' in the Mahanadi valley, and he describes the gems as being "sought for in the sand and gravel of the river, the latter consisting of pebbles of clay slate, flinty slate, jasper, jaspery iron stone of all sizes, from an inch to a foot in diameter.'

"We possess, fortunately, a modern description of the diggings which I have said were visited successively by Major Franklin and by Victor Jacquemont. M. Louis Rousset (L'Inde des Rajahs: Paris, Hachette, 1875), in his splendid volume

(pp. 440, 443), gives an illustration and an account of the world-famous mines of Pannah, the Pannasca of Ptolemy (?), a little kingdom of Eastern Bandelkhand erected in 1809. The Rajah sent a jemadar to show him the diggings, which are about twenty minutes' walk from the town. The site is a small plateau covered with pebble-heaps, and, at the foot of a rise somewhat higher than usual, yawns the pit about 12 or 15 inches in diameter by 20 deep (about 180 feet). It is pierced in alluvial grounds, divided into horizontal strata, *débris* of gneiss and carbonates averaging 13 metres : at the bottom is the diamond rock, a mixture of silex and quartz, in a gangue of red earth (clay?). The naked miners descend by an inclined plane, and work knee-deep in water which the Noria or Persian wheel turned by four bullocks is insufficient to drain ; they heap the muddy mixture into small baskets, which are drawn up by ropes, whilst a few are carried by coolies. The dirt is placed upon stone slabs sheltered by a shed ; the produce is carefully washed and the silicious residuum is transferred to a marble table for examination. The workmen, each with his overseer, examine the stones one by one, throwing back the refuse into a basket ; it is a work of skill on the part of both men, as it must be done with a certain rapidity, and the rough diamond is not easily distinguished from the silex, quartz, jasper, hornstone (corundum), &c.

" Tradition reports that the first diamonds of fabulous size were thus found, and the system of pits was perpetuated : when one is exhausted it is filled up and another is opened hard by—a deplorable system, as 100 cubic metres must be displaced to examine one, and around each well a surface of twenty times the area is rendered useless. Moreover, much time is lost by the imperfect way of sinking the shaft, which sometimes does not strike the stone.

" This diamond stratum extends more than 20 kilometres to the north-east of Pannah ; the most important diggings are those of the capital of Myra, Etawa, Kamariya, Brijpur, and Baraghari. The mean annual produce ranges between £40,000 and £60,000—a trifling sum, as the stones are the most prized in the world, and sell for a high price in the country. They are pure and full of fire ; the colour varies from the purest white to black, with the intermediate shades, milky, rose, yellow, green, and brown. Some have been found reaching 20 carats, and the Myra mine yielded one of 83, which belonged to the Crown jewels of the Mogul. Of course the real produce must be taken at double the official estimate, despite all precautions—such is the case everywhere. The Rajah has established an approximate average amount, and when this descends too low he seizes one of the supposed defaulters and beheads him or confiscates his goods. He sells his diamonds directly to Allahabad and Benares, and of late years he has established *ateliers* for cutting ; these are the usual kind, horizontal wheels of steel worked by the foot.

" Evidently here we have a primitive style, which has not varied since diamond-working began. Good pumps are required to drain the wet pits. Instead of sinking a succession of shafts, tunnels should be run along the veins of diamond-bearing rocks. Magnifying-glasses and European superintendence would improve the washing. Evidently the yield would double in the hands of Brazilians or South Africans.

" The precious stone is still brought for sale from the nearer valley of the Krishna to Hyderabad : it occurs, I was assured, in a whitish conglomerate of lime, locally called Gar-ka-pathar, which must be broken up and washed. As it is found in a region of crystalline rocks, common sense would suggest tracing up the material to the places where it may have been formed, but this is never done. During my week's visit I was consulted by two Parsee merchants concerning the rudimentary tests of scratching and specific gravity. In fact at Golconda, where the finest gems used to be worked, no one, strange to say, can now recognize a rough diamond.

" In 'The Highlands of the Brazil' (II. 113) I have given a detailed list of the various stones associated with the gem ; and specimens of the Cascallho or diamond gravel, the Taaua, the Canga, &c., have been sent to the Royal Society of Edinburgh by Mr. Swinton. It is advisable to remark that this association has everywhere been recognized. In Borneo we are told that 'the diamond is known by

the presence of sundry small flints. The gem-yielding pebble-conglomerate of India, not usually a breccia, as was proved by Franklin, Newbold, and Aytoun (loc. cit., p. 386), contains quartz and various quartzose formations; garnet, corundum, epidote and Lydian stone; chalcedony and carnelian; jasper of red, brown, blueish, and black hues; and hornstone, a kind of felspar, whilst 'green quartz indicates the presence of the best stones.' Fossil chert is yielded by the limestone, and the highly ferruginous and crystalline sandstone produces micaceous iron ores, small globular stones (pisoliths?), and almost invariably fragments of iron oxide. Finally, there are generally traces of gold, and sometimes of platinum. At Hyderabad I was assured that such was the case on the Krishna river, but none of my informants had any personal knowledge of washing. Finally Dr. Carter's 'Geological Papers' convinced me that the sandstones of the diamond area will be found to resemble the 'Itacolumite,' quartzose mica slate or laminated granular quartz, of Brazilian 'Minas Geraes.'

"These considerations convince me that diamond-digging in India generally, and especially in Golconda (the territory of Hyderabad), has been prematurely abandoned. In the 17th and 18th centuries the machinery for draining wet mines was not what it is now; and the imperfect appliances led to the general belief that all the deposits were purely superficial. Doubtless some were in the alluvial soil of the most recent rocks, but M. Rousselet's account shows that deep digging may still be practised to advantage. Voysey also saw the 'sandstone breccia' (diamond conglomerate?) of Southern India 'under 50 feet of sandstone, clay slate and slaty limestone.' The Brazilian miners (Highlands, II. 121) have only lately learned to descend 180 feet; and they find some of their best stones at the lowest horizon. The Vaal river and other South African washings, opened in 1868, soon reached 60 feet.

"Immediately about the Golconda fort the rocks, almost wholly syenitic and granitic, supply only quartz, chalcedony, carnelian, and amethyst. I had heard of chance diamonds being picked up by the accolents of the Krishna river, and Sir Salar Jung, with his usual liberality, proposed laying a dāk for me to Raichor: he was ready in fact to meet a wanderer's wishes in every possible way. I presently, however, learned from good authority that only crystalline rocks like those which we had seen in the Golconda tombs are produced by this central section of the Krishna, and that 'Itacolumite' must be sought elsewhere. Evidently the precious stones have been rolled down from some unknown distance, and to follow the 'spoor' would demand more time than I could command.

"It would be wasting paper to insist upon the benefits of reviving the ancient industry. Hyderabad is not a rich country, and her trade is well-nigh *nil*. But she has coal that wants only a market, and if to the 'black diamond' she can add the white diamond her future prospects are not to be despised. The first step is of course that of 'prospecting,' of systematically reconnoitring the ground, with the aid of a few experienced hands imported from the Brazil and South Africa. If the search be successful a company or companies would be soon found to do the rest. For me it will be glory enough to have restored the time-honoured 'mines of Golconda.'

"We left at the week's end the country of 'our faithful ally,' greatly pleased with the courtesy and hospitality which seem to be its natural growth. And I have a conviction that despite the inevitable retrograde party of all Native States, the *codine* of the East, the warlike Zemindars, the 'dissolute vagabonds,' the 'Pathan bravos' and the 'cut-throats and assassins' of the Press, this realm has become since 1857 the 'greatest Mohammadan power in India.'

"The return journey to Bombay gave time for other reflections. At present our 'enormous dependency, India, the most populous and important that ever belonged to a nation, and conferring a higher prestige on the ruling race than has ever been conferred by any other subject people'—as the judicial Trollope has it—is, has been, and, under present circumstances, ever will be somewhat neglected by the general public of England. No home Britisher can interest himself even moderately in such a colony: it is too distant, and it can hardly be brought nearer by local

parliaments and similar institutions. Although 'Taxation without Representation is Tyranny,' we are not yet prepared to grant what eventually must be granted—representative government. We are therefore driven to seek some other course.

"Again, at Hyderabad, as in India generally, we are living upon a volcano, which may or may not slumber for years. The remedies hitherto proposed for the natural disaffection of the great native powers, kept as they are in a state of quasi-tutelage, appear to be mere quackeries, likely to do harm rather than good. For instance, to make the energetic Indian Prince more powerful within his own jurisdiction would be simply to arm him against ourselves.

"But why not at once admit a certain number to seats in the House of Lords? Of those who claim salutes of 21 guns there are, besides four foreigners, three Indian Princes—the Nizam, the Gaekwar, and the ruler of Mysore—who all happen at present to be minors. Amongst those honoured by 19 guns we find Scindia, Holkar, and Udepur; whilst Jaipur, with 12 others, has 17 guns. Of course it would be necessary to limit the number to six or seven, but the hope of eventually rising to the dignity should not be withheld from the chiefs of lower grade.

"Nothing would tend more directly to conciliate the Princes of India and to make them our firm friends than to admit them to the highest dignity of the Empire, to a House where they would doubtless hasten to sit, where they would learn their true interests, and where they would find themselves raised to a real instead of a false equality with the ruling race."

TIMES OF INDIA, April 28, 1876.—The *Minerals of India*.—The following letter is from Mr. WILLIAM SOWERBY, C.E., F.G.S., dated Broach, 25th April:—

"Your distinguished and renowned correspondent Captain Burton having done me the honour of noticing my previous letter in your paper about Hyderabad minerals, will you permit me to make a few remarks in rejoinder? I must first premise that my personal knowledge of the mineral resources of the old Golconda Kingdom is extremely limited and superficial, and my knowledge of diamond-mining cannot be compared for a moment to Captain Burton's. But I saw sufficient near Hyderabad to indicate that the Nizam's country might turn out to be fertile in valuable minerals if it were properly searched. I did not come to this conclusion exactly on the same principle that a certain mineral surveyor once did when he first saw the Himalayas, exclaiming, 'Oh! that's the country for silver,' waving his hand grandly along the whole range. I formed my opinion from actual specimens picked up—a safe guide. As I am quite unacquainted with what Captain Burton's 'projects' are, it can hardly be said, as he says, that I 'find scanty practical difficulty in working them out'; but I can most cordially wish him every possible success, whatever his projects may be.

"Many years ago I met with an old Indian (Madras) civilian who had come to India fully half a century previous to my meeting with him, and he told me that one of his first duties was in connection with the diamond fields near Cuddapah. As I was proceeding to the Madras Presidency at the time, he handed me some old papers relating to the diamond mines, which are still in my possession. They were of an official character, but I think the substance of them has been published by Dr. Balfour in his Indian Cyclopædia, and I am inclined to believe that Captain Burton may have seen the same papers, judging from portions of his previous letters in your columns. My old Indian friend's first duties were 'to drive the unfortunate diamond-seekers away from the fields,' for they had gone on searching and searching till they were in a state of the most abject poverty, wretchedness, and starvation, and the Government of the time wisely determined to close the mines by putting a cordon round the locality and compelling the wretched seekers to find other means for obtaining a living. This picture differs slightly from the rose-coloured accounts of Captain Burton's experiences in Brazil and the Cape. I consider that the more valuable the mineral the greater the lottery; but whether diamonds or gold, platinum or rubies, have the palm I am unable to determine. While wishing Captain Burton every possible success to his projects, allow me to suggest that if I were he I would prefer going upon the principle of searching for

whatever might turn up, diamonds inclusive, and if one did not pay the others might prove valuable. Captain Burton differs with me about iron-making in India. I can only say, Certainly—certainly—why not? I am not aware upon what experience Captain Burton's conclusions may be based. But, judging from his letters, he has evidently never gone very deeply or practically into the subject. When he obtains a little more experience, perhaps we may not differ so widely. Does he know the fact that there is not a single person who has had to do with the manufacture of iron in India but regrets it? Not a single attempt has been made to manufacture iron in India on a European scale and on European principles but it has ended in financial failure. That the iron and ironstone is good, nay, of the very best, there can be no doubt. I have some near Golconda which is as rich as ironstone possibly can be, and I have specimens from other places that are so pure that, as a smelter would say, 'it would melt and come down into the furnace like butter'; but perhaps Captain Burton does not know that ironstone may be *too rich* for smelting purposes, yet such is the fact, and a moderate percentage is better than a very rich ore. That, however, is a secondary matter of detail.

"Iron is one of the commonest and most readily discoverable minerals in the world; there are few places where it is not to be found, but the reduction of it is not so easy a matter. There was recently an excellent *résumé* of the subject as regards India in a leading article of the *Calcutta Englishman*. It appeared about six weeks ago. After a rapid glance at the whole subject, naming every place where iron-making had been tried, it ended up with an account of the latest attempts at Wurrora or the Chanda valley. The very last account from that place I see by the papers is that some coal and iron is being sent home from that locality to Woolwich for experimenting, the local attempt having proved abortive, after great expense, though a more thoroughly practical man than Mr. Ness, the engineer in charge, it would be impossible to find anywhere. Captain Burton would do well to go there and see for himself. I have my own opinion as to 'the reason why' of the failure, but I may be mistaken, and therefore will not venture to give it.

"Captain Burton thinks I forget all about the value of (so-called) Damascus steel made from Indian iron ore. I can assure Captain Burton I don't 'forget' it, but, what is more, I know that the said iron is made at an expenditure of labour and fuel that is quite prohibitory of its general manufacture except for costly sword-blades and such like special purposes. The ore used is the finest red or micaceous spicular iron ore or granular magnetic oxide, similar to that which is found at *one end* of the Dannemord mine in Sweden. There is a precisely similar well-known hill of iron in Natal, to which the Kaffirs travel for miles to get the stone for making their Asgaes (spears). This African stone is the very counterpart of that from the Swedish mine, and some I have also seen in India. Is it not strange that with such valuable iron and also valuable coal like what is in Natal (better than any Indian coal) they have never set up iron works there? But it is equally strange that while poor Heath was struggling to make the Madras Iron Works pay, with the richest raw materials in abundance, he only succeeded in losing lacs upon lacs. Anatchelam, a native smith at Salem, was making the best of hog-spears and hunting-knives, and Messrs. Bolckow and Vaughan of Cleveland were turning over millions with iron ore barely yielding 30 to 36 per cent. The real secret of Damascus blades is the purity of the materials, and the labour bestowed in manipulation; but the process of manufacture is as rude as it well can be, and most extravagant in raw materials.

"That the coal in the Nizam's territory is not 'superior' wants no proof from me. What I saw was certainly inferior, and not to be compared to good Newcastle coal. That at Chandah is the same class of coal, and has proved to be unsuitable for iron-smelting. It cannot be 'coked,' to begin with, and it is not anthracite or cannel coal. It resembles the brown coal of Southern Austria, and is the same class of coal as Indian coal generally,—like Bengal coal in fact,—and it will be very valuable for local purposes when local wants spring up; as for carrying it any distance by railway, that matter is a well-understood subject, and the limit of distance can be readily ascertained. Water carriage would, of course, make a great difference.

Captain Heenan when he was on board of his steamer must of course have acquired considerable experience of the value of different qualities of coal. But would he like to venture out to sea on a long voyage with nothing but Sasti or Ballapully coal in his steamer's coal bunkers? If he would, then it must be very good coal, and should command a good price in the coal markets of the East. It would be an error to run down the value and quality of the Nizam's coal: the object is to arrive at its true economic value as a fuel; but unless it is found near where there is a demand for it, or where a demand can be created for it, it is of no more use than are the iron mountains of Natal and the coal-fields on the Klip and Tugela rivers in South Africa.

"If Captain Burton could trace these coal-fields to some point nearer the western coast, to where they probably extend, then they would be of greater value. It must be acknowledged that the Government have been always most liberal, and even generous to a fault, in encouraging the introduction of iron manufacture into India, but hitherto without success, but perhaps amateurs may still succeed where experts have failed—failed, however, not usually in making iron, for they have made some of the best iron, but in making it compete with the English manufacturer of cheap iron.

"It is rather too late in the day to teach us anything new in making cheap tramways. The wooden idea suggested by Mr. Worsley, C.E., is upwards of two centuries old, perhaps older: they were first used in the Northumberland and Durham coal-fields for short distances, as now suggested. Unquestionably a light iron rail would be cheapest in the end, especially if locomotives (however light) had to be used. But doubtless Sir Salar Jung will bring back with him some valuable ideas on this practical question, and it is to be hoped the idea of introducing narrow gauge lines into the Nizam's territory will be well considered by him on his return. I quite concur with Captain Burton that the resources of India will never be opened out by Government, whether in the British or the Nizam's dominions. To accomplish this, free and liberal concessions must be given, and fortunes will be made (and lost) by mining, as in other countries. At present the country is as it were hermetically sealed, which is a mistake; but it is certain that so long as the government of the country is carried on like a series of surgical operations, much as a series of surgical operations would be performed by gentlemen amateurs whose competitive training under cunning crammers has led them to believe that they are equal to anything, from the amputation of a limb or the building of a steam-engine, and, without having had any practical training in a single line of life, to consider themselves capable of being head schoolmasters or accomplished legislators—while such men reign supreme, the *Rule of Thumb* will be the custom of the country, and the official seal will not be removed from the mineral treasures lying dormant in the land, and native rulers will always take their cue from the paramount power."

TIMES OF INDIA, *June 2, 1876.*—*The Undeveloped Resources of India.*—The following is a letter from Capt. R. F. Burton, dated off Aden, 18th May:—

"Amidst the hurry and worry of departure, I failed to find a spare moment for noticing the valuable communication, dated Broach, April 25, and bearing the name of your distinguished correspondent, Mr. Sowerby. The calm and quiet of my present home, the *Minerva*, allow me leisure *à discretion*, and perhaps some of your readers may not be unwilling to see how much may be said on the other side.

"The Madras Government would have done better to send a few experienced diamond-diggers to the Cuddapah country, instead of 'driving the unfortunate diamond-seekers away from the fields'; but we have already heard something concerning the modicum of wisdom with which the world, even in Madras, is governed. Of course untrained prospecting and ignorant working end, as a rule, in 'the most abject poverty, wretchedness and starvation.' Thus we explain the Spanish proverb, 'a silver mine means misery, a gold mine ruin.' The 'Garimpeiro,' or pick-and-pan adventurer in the Brazil could hardly keep himself alive on manioc and tobacco, where the wealthy English companies which took his place filled their

coffers. With the diamond the same is the case, and hence I have been able to draw up a 'rose-tinted' account of the diggings in Minas Geraes—Sriena. Capital and skilled labour succeed when the desultory attempts of untaught men breed nothing but failure. My 'projects' are simply to place the true state of the case before the English capitalist, and to enlist the sympathies of individuals and of the public; it would be a profligate waste of labour to attack the *vis inertiae* of the Indian Government, and, bepreach the caste whose Dharma it is to work the machine. It is hardly possible to believe that whilst the diamond has been found in spots scattered over the enormous area, say 500 direct geographical miles in depth, bounded north by the Mahanadi and south by the Krishna, the mineral resources of vast and almost unexplored tracts, like the highlands of Orissa, should continue to be neglected. And although an attempt to revive the diamond mines of Sambal-pore resulted, I am told, in failure, my advice would be to begin with the oldest diggings, which, as Tavernier shows, were systematically abandoned after reaching the depth of a few feet, because the owners ignored the art of pumping them dry. Even if the deserted spots be so worked out as not to yield a single gem, they will make an excellent practical study of the formations in which the stone may be expected to occur elsewhere. My principal difficulty will be the utter unfamiliarity with the subject which belongs to the class whose interests are most concerned. The first attempt brings me the following answer: 'I will give my opinion of the undertaking when I have studied the details, but Golconda is an ungodly place to invite the British capitalist to.' As regards preliminaries, a friend, whose touching modesty induces me to withhold his name, writes to me: 'The success in finding minerals and gems to the east of the Ghats is simply a question of prospecting; and the more prospectors the merrier. Why, there must be now ferreting in Australia, Tasmania and New Zealand little short of half a million of skilled hands. Geologists are valuable only so far that they indicate formations likely to prove fertile—the real work must be done by prospectors.'

"I am far from thinking with Mr. Sowerby that in a hopeful matter like this of development of wealth 'native rulers will always take their cue from the paramount power,' however rigidly our official seal is affixed to the mineral treasures lying dormant in the land. One of the commonplaces of the theoretical English writer is the exceeding conservatism of the East: practically I have found the reverse. True the Bombay 'kunbi' rejected the ridiculous wind-mills by which the late Dr. Buist proposed to abolish the cheap and all-sufficient water wheel; and thus he incurred the vehement displeasure of that *perseveridum ingenium*, who had, they said, a monetary interest in the matter. But show the *pries dû* and *pries di* (Moslem) that the novelty will pay, or will save money: they will adopt it as readily as almost any nationality known to me. What nonsense has been written and read about the failure of Indian railways because nothing could persuade the Brahmin to ride side by side with the pariah! The truth is caste remains powerful as long as it pays; in the inverse condition it is a name and nothing more.

"But practically it is very little matter whether the Government of H. H. the Nizam take or take not the cue from the groovy and torpid rule which distinguishes British India in this section of the nineteenth century. That it will grant free and liberal concessions I am persuaded. Still, after all, the diamond-diggings in the Krishna valley, though far-famed for their produce in days gone by, are a mere line of trenches compared with the depth of field which lies behind them.

"Upon the subject of iron-making in India Mr. Sowerby and I must agree to differ. Of course stone may be too rich for smelting purposes: my travels have shown me mountains of iron, in the United States and in South America, which are neglected for poorer ores. But the common charcoal-smelted metal of Brazil is preferred by the English mining companies, for instance at Sao Joao d' El Rei, to stampers of the best English steel; and I fail to see why the same should not be the case in India when replanting of trees shall become the rule, and when the woods and forests shall be properly managed. In my former letter, however, I alluded especially to sword-blades and other costly articles, in which the least thing

thought of is the value of the raw material. Mr. Sowerby asserts 'not a single attempt has been made to manufacture arms in India on a European scale and on European principles but it has ended in financial failure.' Yet further on we are told that a 'native smith of Salem makes the best of hog-spears and hunting-knives.' European principles, I presume, mean the use of coal, whilst the native preferred charcoal. And why should the Brazils succeed so admirably, with its thousands of little Catalan furnaces, and India fail? Evidently the quality of the fuel is, in both cases, the vital condition of success.

"The specimens of Hyderabad coal shown to me at the Nizam's capital were of thicker formation and of superior quality to the 'brown coal of Southern Austria,' which is a mere lignite. And yet the latter pays, even for steamers, when mixed with a certain proportion of Cardiff. There *is* a demand for coal almost throughout the ancient kingdom of Golconda, where the land has been ruthlessly disforested; and there should, methinks, be little difficulty in inducing the people to abolish, in its favour, the use of 'gobar' and other fuels to which their poverty drives them. Here the only want is evidently cheap and easy transport, and with this object I proposed Mr. Worsley's 'wooden idea.'

"Your distinguished correspondent throws undue stress, it appears to me, upon the fact that these cheapest of tramways have been known in England for centuries, and have been supplanted by light iron rails. Because the latter are found cheapest in England, *argal*, as the grave-digger said, they should be adopted in India. But the mine-owners in the Brazil, where wood is hard and abundant as in India, still work with wooden rails; and in both countries the state of the thoroughfares, especially beyond the main lines of traffic, is that of England two hundred years ago.

"Upon this subject the modest friend before quoted writes to me as follows:— 'I shall be much obliged if you will give me all the information you can about Worsley's wooden railways. I have 500 acres of excellent timber at a point of the Tasmanian N. W. coast, 350 miles from Melbourne. I am within two miles of a shipping-place, and I shall have to make five miles of tramways with wooden rails, *as is always done in this neighbourhood*. (Italics mine.) But the ordinary flanged wheels are used, and they drub the rails horribly. I understand your description of the rails, but I cannot gather from your letter to the *Times of India* what sort of wheels Mr. Cayley Worsley proposes to use. Could you send me a plan, or tell me where to get one?"

"Mr. Worsley supplied me with a sketch-design of his invention or modification, but as it contains novelties perhaps unknown to Mr. Sowerby, whilst allowing me to put the public in possession of the outline of his scheme, he naturally enough insisted upon the details and the plan being kept secret. I have, therefore, referred my valued correspondent to the inventor himself, whose private residence is No. 62, Belgrave Road, London.

"Finally, when Mr. Sowerby roundly asserts 'it is rather too late in the day to teach us anything new in making cheap tramways,' I presume that he has seen or has read about the *Pioneer*, lately invented by my friend, Mr. John Hadden, C.E., and exhibited during last December at Mr. Lee Smith's offices, No. 6, Westminster Chambers. If not, he would do well to master the subject, and then he will probably conclude with me that what has been done in tramways (as in other matters) is a very small part of what remains to be done."

DECCAN TIMES, May 5, 1880.—There are doubtless rich gold fields and other valuable mineral productions in H. H. the Nizam's country. More than half a century ago many European prospectors mentioned the occurrence of gold in the Ramghere and Kumaon districts, and we believe that within the last two years some petty explorations ordered by the Hyderabad Government resulted in the discovery of localities where copper, iron and quicksilver were to be had in abundance, and where promise of gold and silver also is apparent if mining operations are carried out. It is a pity, therefore, that the Government do not set to in earnest in developing the rich mineral resources of the country.

DECCAN TIMES, August 4, 1880.—*Resources of H. H. the Nizam's Dominions.*—We wonder what has become of the two hundred tons of coal sent to Madras from the Singareddy field. It is nearly a year that the coal, after a deal of delay, in some measure unavoidable, was forwarded to Madras *via* the Buckingham canal, and we did think long ere this we should have heard the result of the trial, and whether the coal turned out to be a good serviceable coal or not. There are some millions of tons of coal in the Nizam's dominions, and it is of the first importance to know whether it would pay to dig it up, or, in other words, are our coal fields worth working. We looked forward a little anxiously for the result of the Madras experiment, more to be informed of the quality of the coal than of anything else, as the cost per ton when delivered must have been something enormous, and not at all to be taken as any criterion as to its real commercial value. Surely it is to the interests of His Highness the Nizam that the true value of these hidden treasures in his dominions be ascertained, and the Government ought to take some trouble in finding it out.

But it would appear that these are not the only hidden treasures in the country. We hear of quicksilver mines in the Paikul taluk; of copper mines in the Wurungal, Madara and Paikul taluks; of alabaster to be found in Paikul, as also lithographic stones; black mica in Wurungal; sapphires in Madara; and rubies in Poloncha. If all we hear be true, the country must be exceedingly rich in its mineral resources. The quicksilver mines alone are said to be worth a mint of money, to say nothing of the others, which, it is asserted, might be worked very profitably. The presence of coal has been established beyond all doubt. The Rajore and Sasti coal fields are calculated to contain seven millions of tons of good workable coal; the Kamawaram field two millions; the Singareddy forty-six and a half millions; besides the Bolapully and Godavery fields, not yet estimated: aggregating a total of nearly sixty millions of tons, only awaiting the touch of the magic wand of enterprise to convert them into gold.

It would be as well if the other mines talked about, valuable ones they seem to be, were as fully demonstrated. The Government is fully alive to the importance of finding out, if not of developing, these resources, as is evidenced by the rewards it has offered for the discovery of valuable mines; but it has not hitherto gone the right way to work. If instead of employing mere adventurers or incompetent persons it were to entrust a regular geological survey of the country to acknowledged men of science, the Government would know almost to a certainty what and where the real mineral resources were, and a stop would be put, once and for all, to idle speculation. We do not believe that a geological survey of the country has ever been attempted, and we would strongly urge that one should be undertaken as soon as possible. A couple of years would complete the task, and it would not cost very much. Even if the Government did not find itself in a position to take immediate steps in the way of developing these resources, it would be in possession of correct information that might be turned to good account at some future day; besides which a survey of this nature would be a valuable contribution to the knowledge of a country so little known as are His Highness the Nizam's dominions.

MAJOR W. G. MURRAY'S REPORT ON THE HYDERABAD SURVEYS.

The Nizam's dominions, commonly called Hyderabad, of which the Survey has now been completed, is an extensive realm of Southern India, and lies between the parallels of 15° and $21^{\circ} 30'$ N. and the meridians of $74^{\circ} 40'$ and $81^{\circ} 30'$ E. Its average length may be estimated at 320 miles, average breadth 270 miles, and the gross area of the whole may be calculated at 97,837.25 square miles.

It is bounded on the north in part by the Taptée river, separating it from the British provinces of Khandeish and Nagpore; on the east by the Wurdah and Godavery rivers, which divide it from the Central Provinces; on the south by the Kistna and Toongbudra rivers, which are between it and the British districts of Masulipatam, Guntoor, Kurnool, and Bellary; and on the west by the districts and principalities of Dharwar, Sholapoor, Belgaum and Ahmednuggur.

The climate is good; the mean temperature throughout the year at Hyderabad may be taken at $81^{\circ} 5'$, or monthly as follows:—January $74^{\circ} 5'$, February $76^{\circ} 5'$, March 84° , April $91^{\circ} 5'$, May 93° , June 88° , July 81° , August $80^{\circ} 25'$, September 79° , October 80° , November $76^{\circ} 5'$, and December $74^{\circ} 5'$.

The chief diseases are those of the spleen and eye, fevers, ague, rheumatism, and dysentery. Cholera is not prevalent. From drinking well water a great many suffer from dracunculus or guinea-worm.

The principal rivers are the Godavery, Kistna, Poorna, Manjera, Toongbudra, Bheema, Wurda, Penganga, Seena and Moonar.

The only natural lake is the Purkal lake, in the Wurrungul Circar, but the country generally abounds in large artificial tanks, from whence the water is taken for irrigation; some few of these retain water throughout the year, but the generality of them run dry during the hot weather.

The principal military roads are—

1st—From Nagpore by Nundair and Hyderabad to Bangalore;
2nd—From Madras and Masulipatam through Hyderabad to Poona and Bombay;

3rd—From Hyderabad to Aurungabad: the distances from Hyderabad to Madras being 399 miles; to Masulipatam 221 miles; to Nagpore by Nundair, which is open throughout the year, 420 miles; to Jaulnah 263 miles; to Bellary 229½ miles; and to Cuddapah 256½ miles.

The cities and places of chief note are Hyderabad, Jaulnah (British cantonment), Chinnoor, Beder, Jaafirabad, Daolatabad, Aurungabad (British cantonment), Nundair, Ellichpore (British cantonment), Golconda, Wurrungul (British cantonment), Palunsha, and Secunderabad (British cantonment).

The chief fortresses and hill forts or droogs are those at Medluck, Daroor, Purainda, Nuldroog, Pangull, Allunpore, Gudawall, Moodgull, Koilkonda, Golconda, Gawilgurb, Chundraguddah, Anantagherry and Narnala.

The general surface of the country is irregularly hilly, the average elevation being from 1,800 to 2,000 feet above the level of the sea. The chief ranges are the Sautpoora, Mulkapore, and Golconda hills. In some parts the hills appear to be completely isolated, but on a closer examination it will be found that they are connected at their bases and thus form connected ranges.

The productive soils are the red and grey gravelly soils and the black loamy soil, commonly termed the black cotton soil.

There are fine forests in some parts of this territory, but as a rule it cannot be termed a good timber country. Firewood is cheap and abundant.

The principal timber trees are the—

Toomkee.....	Dalbergia latifolia	Soondree.....	Herilieri robusta
Undooga.....	Erythrina indica	Sal	Shorea robusta
Mhowa	Bassia latifolia	Teak	Tectonia grandis
Neem	Melia Azadirachta	Ebony.....	Diospyros melanoxylon
Babool	Acacia arabica	Mango	Mangifera indica

There are also extensive forests of the date and palmyra palms.

Products. The principal products are—

Cholum.....	Holens saccharatus	Raggee.....	Cynosurus Corocanus
Jowar	Do. Sorghum	Til	Sesamum orientale
Bajree	Do. spicatus	Hemp	Crotalaria sancta
Channa.....	Satyrus Aphaca	Castor plant.....	Ricinus communis

opium, tobacco, sugarcane, rice, cotton, wheat, barley, maize, flax, peas, turmeric, toor, betelnut, chillies, &c., dals, moong, masoor, and harbar.

Exports.

The principal exports are cotton, raw thread, rice, cloth. kumbliies (a coarse sort of blanket), honey and wax.

The number of inhabitants may be roughly estimated to be about 10½ millions, which will give about 107¼ souls to the square mile. They are of various tribes, sects and religions—Mahrattas, Hindoos, Mahomedans, Seikhs, Arabs, Seedeas, Scindees, Telingas, Lingaets, Paligars, Beyders, Canarese and Telinga Brahmins, Mangs, Dhairs, Gonds, Korkus, Nihals, Kolams, Rohillas.

Languages.

The languages chiefly spoken are Canarese, Teloogoo, Mahratti and Urdu.

The different tenures of land are—

Land Tenures. 1st—Khalissa, the general meaning of which is the unalienable property of the lord of the manor, but it usually means lands held of or belonging to the Government of the Nizam.

2nd—Oomuli: lands given on perpetual lease at low rents, in return for some hereditary service.

3rd—Jagheer: a lordship without reservation of demesne lands. They are held as principalities, estates, pensions, or as funds for certain establishments and institutions.

4th—Merasi: hereditary claims appertaining to land, or held as fees for agricultural, commercial or revenue objects.

5th—Zemindari: generally applied to the hereditary proprietors and farmers, implying to some slight extent independent rights.

Revenue.

The revenue of H. H. the Nizam may be estimated at a million and a half per annum.

Game and Sport. Game is abundant throughout the Nizam's dominions. "There are tigers, leopards, panthers, bears, bison, sambur, nilghau, antelope, four-horned antelope, spotted deer, hog deer, ravine deer, jackals, wolves, hyenas, foxes, tiger-cats, otters, and hares; whilst amongst the feathered game you will find grey and painted partridge, blue and green pigeons, the rock pigeon or sand grouse, quail, snipe, floriken, bustard, peacock, spur fowl, jungle fowl, ducks of many kinds, and teal.

There are a few wild elephants, the produce of a pair of tame ones that escaped after the battle of Assaye.

Troops, &c.

The forces kept up and paid for by the Nizam are—

1st—The Auxiliary Force, under British officers.

2nd—The Irregular Force of cavalry, artillery and infantry.

3rd—The miscellaneous force of Arabs, Scindees, Seikhs and Patans.

4th—The troops maintained by Amildars for revenue and police purposes.

Auxiliary Force. The Hyderabad Subsidiary Force as at present constituted by treaty consists of 4 light field batteries of artillery, with 8 European officers and 520 men, twelve 6-pounder guns and four 12-pounders.

Four regiments of cavalry, a total of 20 European officers and 2,320 men; the horses are Silladaree, i.e., private property of the troopers.

Six regiments of infantry, comprising 30 European officers and 5,526 men.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Cantonments :—

Aurungabad.	The cantonments are as follows :— Head quarters : one battery artillery, one regiment of cavalry, one regiment of infantry.
Ellichpore.	One battery of artillery, wing of cavalry regiment, and one regiment of infantry.
Hingolee.	One battery of artillery, wing of cavalry regiment, and one regiment of infantry.
Bolarum.	One battery of artillery, one regiment of cavalry and one of infantry.
Mominabad.	One regiment of cavalry.
Lingasagoor.	One regiment of infantry, a detachment of cavalry.
Jaulnah.	One regiment of infantry, a detachment of cavalry.
Akola.	Detachment of infantry.
Oomrawattee.	Ditto ditto.
Warrungul.	Ditto ditto.

Kumroodeen Assuf Jah, the first Nizam-ool-Moolk (Regulator of the State), was an officer of high standing in the service of the great Emperor of Delhi, Aurungzebe, who in the declining days of the Mogul Empire, *i.e.*, in 1713, established himself in the Deccan as an independent prince. He died in 1748. His authority extended from the Nerbudda to Trichinopoly, and from Masulipatam to Beejapore.

Nazir Jung, the second Nizam, was assassinated at Arcot in 1750.

Moozuffer Jung, the third Nizam, was murdered in 1751.

Ghazeeooddeen, the next claimant, was poisoned by the mother of Salabut Jung, the fourth Nizam, who was put to death in 1763.

Nizam Allee, the fifth Nizam, had a long but by no means prosperous reign, and managed to reduce his territories in a remarkable manner.

In 1761 he gained some small successes against the Mahrattas.

In 1765 he devastated the Carnatic, was opposed and defeated by the British, and by a treaty signed in November 1766 the Northern Circars were assigned to the E. I. Company on payment of a peshkush or tribute of nine lakhs of rupees per annum.

In 1767 he leagued with Hyder Ali against the British, but was defeated by Colonel Smith, and made another treaty by which he engaged to keep up a small auxiliary force and receive lower tribute for the Circars.

In 1780 he again formed another league with Hyder Ali and the Mahrattas, but in 1788, by another treaty with the English, he gave up Guntoor in perpetuity, and again in 1790 another treaty by which he received large territories in return for the assistance rendered against Tippoo Sultan.

In 1795, being defeated by the Mahrattas under Daolat Rao Sindhia, he ceded districts yielding 35 lakhs of rupees to the Mahrattas, and paid a fine of three millions of money.

In 1798 he concluded another treaty with the English, fixing the annual subsidy at 24,17,100 rupees.

Nizam Ali died in 1803.

During the reign of Sekunder Jah, the sixth Nizam, the Wurdah river was fixed as the boundary between the territories of the Nizam and the Bhonsla of Nagpore.

In 1821 his revenue was Rs. 1,89,33,550. He died in 1829. His son Nusseerood-dowlah was the seventh Nizam, who died in 1857.

Afzal-ood-dowlah was the eighth Nizam.

In 1853 a new treaty was signed in which the strength of the present force was settled, and to provide for its payment the Nizam ceded certain districts—the Berars, Raichore, Doab, Shorapore or Suggur Circar, and the Purainda and Nuldroog Circars.

In December 1860 a new treaty was made, in which the debt of 50 lakhs of rupees due by the Nizam was forgiven. The Circars of Suggur, Raichore, Moodgul, Purainda and Nuldroog were given back to the Nizam, and sufficient land was annexed to the Berars as made up the yearly sum of 32 lakhs of rupees. The Nizam also ceded the talooks of Sironcha, Albaka, Noogoor, Cherla, Bhudrachelum and

Rakapilly, now known as the Upper Godavery District. He is lately deceased, and his son and successor, the ninth Nizam, is a minor; the affairs of the State are carried on by a Regency, of which the working member is Sir Salar Jung, K.C.S.I., the Prime Minister.

At the commencement of the survey in 1816 the Nizam's dominions were divided into 40 provinces or Circars, *viz.* :—

Amrabad	Koolburga	Moodgul	Davercondah
Baithulwaddy	Kowlass	Mulkhair	Patree
Bassim	Kullianee	Mullangoor	Purainda
Eilguudel	Kunnummett	Nandair	Pyton
Gawilghur	Beder	Narnool	Raichoor
Ghunnapoora	Bheer	Nilgoondah	Rangir
Godavery	Bhonagheer	Nuldroog	Shahabad
Golconda	Mahare	Pangull	Suggur
Jaulnah	Majker	Daolatabad	Warungul
Koilkonda	Medduck	Daroor	Yedagherry

The initial data upon which the results of the Hyderabad survey depend are the Trigonometrical Survey operations of Colonel Lambton and Colonel Everest, *viz.* Colonel Lambton's measurement of the great arc series between the Gooty and Beder basis, Colonel Everest's measurement of the same between the Beder and Sironge bases, the Bombay longitudinal series by Colonel Everest, a series executed by Captains Garling and Connor commencing from a measured base near Goa, and another series by Captain Garling emanating from the Bombay longitudinal series and connecting with the old great arc series south of the Beder base.

The report of the Hyderabad Survey will be divided into three parts. The first will contain a short *résumé* of the operations of the old Hyderabad survey which was commenced in 1816, and carried on year after year till its suspension by the orders of Government in December 1850; the second part will treat of the operations of the Survey on its resumption in January 1855 under Mr. Mulheran till its close in October 1866, whilst the third part will contain a statistical and geographical memoir of the province of Berar.

PART I.

THE OLD HYDERABAD SURVEY.

The points furnished by the Great Trigonometrical Survey operations in Hyderabad were not found sufficient on which to base the detail work, and therefore, from the sides of the different trigonometrical series a network of triangulation was thrown over the whole country. The principal angles were observed with the 18", 14", and 12" theodolites, a mean of six or eight readings, backward and forward angles being taken. The secondary angles were generally observed with a smaller instrument, such as a 9" or 7" theodolite.

The heights were obtained by trigonometrical levelling. The country was roughly plane-tabled, the boundaries carefully measured and mapped on a special scale. The topographical details on the original field sections were on the scale of 2 miles = 1 inch.

From these, assisted by the field books and boundary measurements, fair copies of the sections on the scale of 1 mile = 1 inch were compiled, and from these again the general geographical maps on the scale of 4 miles = 1 inch were deduced.

There is no doubt that these compilations were executed in a very creditable, and generally speaking a very reliable manner, but it must not be forgotten that the present system of topographical survey is of a very different character, and it was a matter of some difficulty to amalgamate the two surveys.

For all military purposes the present survey will be found ample, but it is an open question whether the survey is sufficiently accurate for either revenue, geological or engineering purposes.

The survey was commenced in 1816 by the transfer of Captain James Garling and party from the survey of part of the Madras Residency, and he conducted the survey operations till June 1820, when he fell a victim to the insalubrity of the climate.

During his tenure of office the survey was completed of the Moodgull, Raichore and Suggur Circars.

The charge of the survey devolved upon Mr. Thomas Hill, the senior sub-assistant of the party, during the interval between the death of Captain Garling and the appointment of Captain Connor, in February 1821, but the latter held charge for a few months only, and died in April of that year.

Captain R. Young, then at Nagpore, was appointed in May 1821 to the executive charge, and he held it till his death in July 1823. Captain Young completed the survey of the Shahabad Circar and commenced that of the Golconda, Koilkonda, Medduck, Pangull, Ghunnapoora, Bhonagheer, Nilgoonda and Amrabad Circars.

Captain John Crisp held the appointment of Superintendent of the Hyderabad Survey from August 1823 till May 1827, when he retired from the department; during this time he completed the survey of the Pangull, Amrabad and Ghunnapoora Circars, which had been commenced by Captain Young, the whole of the Yedlagherry Circar, and surveyed portions of the Davercondah, Nilgoonda, Koilkonda, Mulkhair and Kummummett Circars.

Captain J. T. Webb succeeded Captain Crisp, and held the executive charge till August 1829, when he also left the Survey Department.

During his period of office the survey was completed of the Golconda, Davercondah, Nilgoonda, and Bhonagheer Circars, begun and carried on by Captains Young and Crisp. He also continued the survey of the Medduck and Kummummett Circars, and commenced that of Wurrungul.

Lieutenant H. Morland, who had been Captain Webb's assistant since March 1828, now succeeded as Superintendent, and conducted the work of the survey till April 1832, when he made over charge in turn to his assistant Lieutenant S. C. Macpherson. Captain Morland during this period completed the survey of the Medduck, Wurrungul and Kowlass Circars, and commenced that of the Beder and Nandair Circars.

Lieutenant Macpherson held charge for the short interval between Captain Morland's departure on leave and Lieutenant DuVernet's assumption of the duties of Superintendent.

Up to this date the survey of the Nizam's dominions had been conducted under the immediate superintendence and control of the Deputy Surveyor General of Madras, but the then Surveyor General, Colonel George Everest, thought it right to transfer the control of this important survey to himself as Superintendent of the Great Trigonometrical Survey, and appointed Lieutenant DuVernet, of that branch of the department, to the post of Superintendent, which he held till November 1835.

Lieutenant DuVernet began and completed the survey of the Kallianee, Nuldroog, Eilgundel, Mullangoor and Purainda Circars, and finished that of the Beder, Mulkhair, Koolburga and Koilkondah Circars, which had been begun by his predecessors in office. He also commenced the survey of the Bheer and Daroor Circars.

The Hyderabad survey was placed under Mr. A. Chamarett, the senior uncovenanted officer of the party, till Major Morland's return in July 1836, who held the post of executive officer during this his second tenure of office till October 1838, when he gave up his appointment in the Survey Department for active service in the field.

During this period the survey of the Bheer, Daroor and Kummummett Circars was finished.

Mr. Chamarett held charge of the survey as in temporary charge till Major Morland's return in November 1844, excepting a period of six months in 1840, when Captain Ryves officiated as the Superintendent.

During this interval and whilst Mr. Chamarett was in temporary charge the survey was completed of the Patree, Nandair, Maiker, Jaulnah, Pyton and Baithulwady Circars, and the survey of the Bassim and Narnool or Narijala Circars commenced.

Major Morland's third resumption of the office of Superintendent of the Hyderabad Survey lasted till the 14th March 1848, on which date he was relieved by Major J. R. Brown.

Major Morland finished the survey of the Bassim and Narnool Circars and commenced that of the Daolatabad Circar.

Major J. R. Brown, the twelfth and last Superintendent of the old Hyderabad Survey, completed the survey of the Daolatabad Circar, and had entered upon that of the Gawilgurh and Mahore Circars, when the further progress of the survey was stopped by order of the Government, at the suggestion of the Resident at Hyderabad, Major-General Fraser.

The causes that led to the discontinuance of the survey operations in Hyderabad were as follows:—

The state of the country was represented by the Resident to be such as to render the prosecution of the survey any longer impracticable, and Major Brown did not appear to possess the qualifications of tact, patience and conciliation, so absolutely necessary in a surveyor. He was not, moreover, on friendly terms with the authorities, and especially so with the Brigadier commanding the district, which doubtless lessened the respect he ought to have obtained from the more influential inhabitants. These reasons combined with the low standard of Major Brown's professional qualifications and the fact that there was no available officer to place in charge induced Colonel Waugh, the Surveyor General, to recommend the suspension of the survey for two years.

The assistants of the party were drafted into other surveys, *viz.*, the N. W. Himalaya series Great Trigonometrical Survey, the great longitudinal series Great Trigonometrical Survey, and the Ganjam Topographical Survey.

The services of Major Brown, the Superintendent, were placed at the disposal of the Commander-in-Chief, Madras.

The records, papers and equipment of the party were made over to the Ganjam Topographical Survey under Lieutenant (now Colonel) Sexton.

During the 34 years that the Hyderabad Survey had been in operation the whole of the Nizam's dominions had been completely surveyed excepting the Gawilgurh, Mahore, Rangir, and Godavery Circars. The final records had been lodged in the Surveyor General's Office at Calcutta, comprising the field sections, angle books, computations, geographical maps, scale 4 miles=1 inch, village lists, boundaries and road surveys, and geographical memoirs of each Circar.

These results have all been incorporated into and engraved on the under-mentioned sheets of the Great Indian Atlas, *viz.*, 38, 39, 54, 55, 56, 57, 58, 73, 74, 75.

A map of the scale of 16 miles=1 inch of the Nizam's dominions, showing the territories surveyed from the year 1816 to 1849, has been compiled in the Surveyor General's Office and published.

A similar map, on the same scale, showing the different territories assigned to the British Government under treaties, has also been published.

The following Circars have been published on the original scale of survey, 1 mile=1 inch:—

Baithulwaddy.	Gawilgurh.	Kullianee.	Nurnool.
Bassin.	Jaulnah.	Maiker.	Patree.
Daolatabad.	Kowlass and Pyton.	Nuldroog.	Purainda.

The geographical memoirs of the Circars as completed by the Hyderabad Survey are voluminous records of all the most interesting and noteworthy objects as seen by the surveyors, and are moreover complete with statistics of every description.

They contain notices of the physical features of the country, of the most important cities, towns, droogs, roads, rivers, passes, defiles, ferries and fords, hills, tanks, soil, people, languages and legends, statistics of population, villages, trades, animals, &c. Short extracts from these memoirs will close the 1st Part of this Report.

The Amrabad Circar, which is sometimes included in that of Ghunnapoora, is bounded on the north by the Davercondah Circar, on the east by the district of Guntoor, on the south by that of Kurnool, and on the west by the Pangull Circar.

It contains 927 square miles, of which 20·75 square miles is devoted to rice cultivation, and 41·5 square miles to the cultivation of dry grains.

The population is about 4,904.

The greater part of the Circar is hilly, called by the inhabitants Nullamulla, and is finely timbered—indeed a small portion to the south was so very thickly wooded as to preclude all possibility of making a survey of it. These hills are occupied by a hill tribe called Chensoods. The account they give of themselves is that during the great war between Rama and Rawan they so helped the former by their powers as archers that he gave them this name. It is probable that they migrated from the south of the peninsula.

The chief cities and towns are Amrabad, Achumpett, Muddinopully, Rugpud-deepett and Goodhull.

There was formerly a large city called Chundergoobty Putnum, the seat of the Chundergoobty Raja, who having attempted incest with his daughter obliged her to flee the country. He followed in pursuit, and in crossing the Kistna river was drowned, owing to her prayers; the city was engulfed at the same time. The daughter is now worshipped as the Mullika Devi.

The chief rivers are the Kistna Dindee, 30 yards broad, and the Manambudda Vag, 50 yards broad.

There are some rather fine tanks in this district. The soil is a peculiar red gravelly soil called by the natives "Tooa."

The Baithulwaddy Circar is a small hilly district situated in the Ajunta hills, bounded on the north by the district of Khandeish, on the east by the Maiker and Nurnalla Circars, on the south by the Jaulnah Circar, and on the west by that of Daolatabad.

More than two-thirds of the Circar is a barren jungle waste. Its area is 668 square miles, of which 200·25 square miles are under cultivation.

It is divided into 10 pergunahs, *viz.*, Baithulwaddy, Ajunta, Chicklee, Oondengon, Shevancee, Chandole, Dhar, Dhavoda and Saolatbarrah.

The total number of villages is 188, of which 21 are deserted.

The chief cities, towns and villages are Baithulwaddy, utterly ruined,—and in which the hill fort only is garrisoned. Ajunta, Chandole, Bara Musla, Ghat Sheolee, Chicklee, Oondengon, Shellode, Jheranee, Dhar Dhavoda and Saolatbarrah.

Ajunta is a large and fortified town, and it was here the sick and wounded were carried after the battle of Assaye, 23rd September 1803.

The celebrated caves of Ajunta are 3½ miles W.N.W. from the town.

The chief rivers are the Poorna, Wagora, and Pailna. The only road in the Circar is that from Jaulnah to Bouldanah.

The Bassim Circar is bounded on the north by the Circars of Gawilghur and Narnalla, on the west by Maiker and Jaulnah Circars, on the south by those of Patree and Nandair, and on the east by the Mahore Circar.

It contains 2,351·5 square miles, of which 940·75 square miles are under cultivation.

It is divided into nine pergunahs, *viz.*, Bassim, Bamnee, Nursee, Kullumnooree, Oondah, Damnee, Chartamah, Mungrool and Hingolee.

The population is estimated at 23,515 souls.

The chief towns and villages of this Circar are—Bassim, containing a strong citadel, serai, and about 5,000 houses; Bamnee, Nursee, Kullumnooree, Oonda with a temple to Mahadeo Nagnath, Chartamah, Damnee with a temple to Khundoba, Parwah, Kootal, Sailoo, Mungrool with citadel, and Hingolee.

The principal rivers are the Poorna, Penganga, Khair and Kantée Poorna. The Circar is full of hills, plateaus and high slopes.

The Beder Circar, an ancient Soobaship, is bounded on the north by Nandair and Koolass Circars, on the south by those of Mulkhair and Koilkondah, on the east by Kowlass, and on the west by the Circars of Kullianee and Koolburga.

It has a total area of 1,694 square miles, of which 1,097·5 square miles are under cultivation.

It is divided into 8 pergunahs, *viz.*, Beder, Teekalee, Kauramoongy, Bhalkee, Chidgoopah, Nittoor, Anrad and Hussanabad.

The chief towns and villages in this Circar are Beder, Khanapoor, Kauramoongy, Yekhalee, Bhalkee, Hoomnabad, Chidgoopah, Nittoor, Anrad and Hassanabad.

Beder was formerly a city of the Wurrungul empire. In 1345 Ahmed Shah Wali Bahmini made it the seat of his empire and called it Ahmedabad. He built here a palace, a fort and mosque and a humman. In 1445 Allaooddeen Shah built another palace, and in 1490 Sultan Mahomed Bahmini built another. Kirajee Mahmood Gawace, Vuzcer of Mahomed Shah, built and endowed a splendid madrissa or college. The city was afterwards captured by Aurungzebe.

The Kowlass range of hills enters into this Circar.

There is little or no timber, though plenty of underwood.

There are two good roads—from Beder to Poonah; 2nd, Beder to Jaulnah.

The principal river is the Manjera.

In the vicinity of the capital, Beder, one of the base lines of the great arc series was measured, and from the measurements here was determined the station of Kullianee. Kullianee to Kullianpore is the portion of the arc of the meridian measured by Sir George Everest.

The Bheer Circar is bounded on the north by the Jaulnah Circar, on the north-east by that of Daroor, on the south by the Puraindah Circar, and on the west by the Ahmednuggur Collectorate.

The area of the Circar is 1,228·5 square miles, of which 670·5 square miles are cultivated lands.

It is divided into 6 pergunahs, *viz.*, Bheer, Gaoorie, Talkhair, Patrood, Balaghat, and Manoor.

The chief towns are Bheer, the capital of the Circar, situated on the left bank of the Bensoora river and enclosed by a wall 30 feet high; Oomeraid, Dunger, Kinnee, Rajooree, Rhymao, Manoor on the right bank of the Nagathola river, Patrand, Kullagaon, Lambaganesh, Talkhair, Chausala and Givaroi.

The Hubshee grapes grown at Bheer are perhaps the finest in India.

The chief rivers are the Godavery, Simphuna, Doombri, Koonba and Munjeera.

The principal roads are those from Bheer to Daroor and Ahmednuggur, and from Sholapoor through Bheer to Jaulnah.

The Pubilli Ghat is passable for wheeled vehicles.

The soil, though not the black cotton soil, is a black alluvial soil much mixed with loose stones.

The Bhonagheer Circar is bounded on the north by the Circars of Medduck, Mullungoor and Wurrungul, on the east by those of Wurrungul and Nilgoonda, on the south by Davercondah, and on the west by Golcondah and Medduck Circars.

It has an area of 2,464·75 square miles, of which 237 square miles are grown with rice and 307·25 cultivated with dry grains.

It is divided into 11 pergunahs, *viz.*, Bhonagheer, Waddamurry, Teegoola, Sharnuggur, Terragopla, Cheyralla, Koolpar, Niddagoonda, Vamulconda, Rachconda and Inderperal.

The places of note are Bhonagheer, with hill fort now much dilapidated, Beebeenugger, Rajapet, Waddamurry, Toorkapally,—once famous for its Poligar chief, a mighty plunderer in days bygone, since confined by order of the Nizam,—Teegoola, Sharnuggur, Terragopla, Cheyralla, Koolpar, Niddagoonda, Vamulconda, Rachkonda, Toomullagoodum, Yakrall and Narainpoor.

There are fine tanks which keep water throughout the year at Samiarpett, Pedda, Luchmapoor, Cheyarpurty, Cheyralla, Terragopla, Gokawarum, Chaddah, Allapoorum and Toomillagoodium.

The chief rivers are the Moosy, Peddavag, Samiarpett, Nullah, Chaddah and Allair rivers.

The main roads are those from Hyderabad to Madras and Masulipatam, which separate one from the other at Koilagoodum.

The Daolatabad Circar is bounded on the north and west by the district of Khandeish, on the east by Baithulwaddy and Jaulnah Circars, on the south by that of Pyton, and on the south-west by the Godavery river and Ahmednuggur district.

Daolatabad Circar.

The area of the Circar is 2,790 square miles, of which 1·25 are cultivated with rice and 1,148·75 with other dry grains.

There are 15 pergunahs in this Circar, viz., Sootoonda, Untoor, Kunner, Valooz, Gandkapoor, Poolmurree, Ursool, Sattarah, Byjapoor, Kundalla, Taklee, Deogaon, Ellora, Roza and Daolatabad.

The chief cities and towns are Daolatabad, celebrated for its grapes, with a hill fortress surrounded by a moat 100 feet deep always full of water, and which is now used as a State prison.

Aurangabad, residence of a Soobah, was founded by the Emperor Aurungzebe in 1650, and was for a long time the capital of the Deccan. It is situated on the banks of the Gunday river. It contains a beautiful mausoleum called the "Beebee Moorabah," built by Aurungzebe over the remains of his favourite daughter. Aurungabad is celebrated for its gardens. It is now the head-quarters of the Hyderabad Subsidiary Force.

Sootoondah with a hill fort, Untoor with a hill fort in ruins, Kumeer, Vellooz on the Bombay road, Gandapoor, Poolmurree, Hursool, Sattarah, Byjapoor, a fortified town, Kundalla, Taklee, Deogaon, Ellora, famous for its cave temples, and Roza, where the emperor Aurungzebe and many of the princes of India are buried.

The chief rivers are the Godavery, Poorna, Ajnah, Sinna, Kailna, Girja and Gunday.

The Balaghat range of hills, a part of the Sautpoora range, runs through the north part of the province; another range runs just north of Daolatabad and Aurungabad.

They are both filled with timber, including sandalwood.

The Daroor Circar is bounded on the north by the Godavery river, separating it from the Bheer Circar, on the south and east by Nandair, and on the west by the Bheer and Purainda Circars.

Daroor Circar.

It contains an area of 1,525 square miles, 1 of which produces rice, and 753·5 are under dry grain cultivation.

It is divided into 7 pergunahs, viz., Daroor, Ambah, Burdapoor, Sirsalla, Fownair, Shailgaon and Purley.

The chief towns and villages are Daroor, a large and populous town on the highroad between Hyderabad and Aurungabad, Kaij, Undoora, Amba, Kodree, Diggool, Digwal, Poojain Ghaut, Nandoor, Pangaon and Reynapoor.

The principal rivers are the Godavery, Wan and Manjera.

The tanks in this Circar are few and small.

The high table-land on the verge of which Daroor and Ambah are situated with its slopes are the only hills in the Circar.

The soil is a rich black loam very productive.

Saltpetre is found in Daroor in great quantities, and a coarse and inferior description of gunpowder is made.

The Daverconda Circar is bounded on the north by the Circars of Golcondah and Bhonagheer, on the east by that of Nulgoondah, on the south by Amrabad Circar and the district of Guntoor, and on the west by the Circars of Ghunnapoora and Golcondah.

Daverconda Circar.

Its area is 2,980 square miles, of which about 200·5 square miles are rice-producing lands and 576·75 are cultivated with dry grains.

It is divided into 11 pergunahs—Ibramputnum, Indoorty, Marapudly, Deyoul-

pully, Wazeerabad, Davercondah, Kullava, Koorty, Yeljal, Surreykondah, Pairoor and Chittial.

The chief towns and villages are Davercondah with hill fort and fortified town at its base, Chundoor, Indoorty, Marapully, Surreykondah, Pairoor, Sirsagundla with an annual fair in March, Deyoulpully, formerly a very important place on the Madras road, Merialgoodum, Wazeerabad at junction of Kistna and Moosy rivers, Chittiala, Damercherla, Kullava, Koorty, Yeljal and Kesumpett.

There are large tanks at Deyoulpully, Merialgoodum and Yedageerypully.

The principal rivers in this Circar are the Kistnah, Moosy and Pairoor.

The highroad from Hyderabad to Madras passes through the eastern portion of the Circar.

There are some few hills. The Amrabad, Rajakondah, Aroolla and Surreykondah ranges run through portions of the Daverconda Circar.

The geographical memoir of the whole of this Circar does not exist.

The Eilgundel Circar is bounded on the north and west by the Circar of

Eilgundel Circar. Nandair, on north-east by Ramgir, on the south-east by Mullungoor, and on south-west by the Medduck Circar.

The area is 2,755·4 square miles, of which 669·5 are under cultivation, of which again 267·25 are cultivated with rice.

There are 21 pergunahs, *viz.*, Eilgundel, Anantagherry, Korem, Namapully, Bejeigherry, Karutta, Nizamabad, Kodamialla, Vempully, Numbeconda, Racherla, Yelchal, Sunnigram, Moostlapoorum, Villoola, Assikoto, Kutkoor, Derkondah, Nundigherry, Palass, Yeldeve.

The chief towns and villages are Eilgundel, on left bank of the Munar river, which contains a fine fort with ramparts, towers, and a deep ditch, containing also in its midst a perpendicular rock strongly fortified. It was formerly the residence of Konarao, who was taken prisoner by the Russell Brigade under Major Pitman in 1819.

Yamulwadda, Koratta with fort, Sircilla, Inktial with a strong fort supposed to have been built by Durr Sahib and a French engineer, Gumberaopett, Kutkoor with temple, and Dumbacoonta.

There are hill forts at Khyrumcondah and Anantagherry, both now in ruins.

The rivers are the Godavery, 700 yards broad, Munar, 350 yards broad, Pedder Vag, 100 yards broad, Punja Vag, Goondairoo, Sully Vag and Mohedomada Nulla.

The hills and plains where uncultivated are covered with brushwood jungle and small trees. There are a few teak forests in this Circar.

The most remarkable buildings in this Circar are the Edgah and rock mosque at Eilgundel. The temples at Yamalwadda, Demapoory, Sungium, Illundakoonta, Koonla and Cheerlavuncha, and some ancient Jain temples at Dooloor, Walgoonda, Roykul and Iktial.

The soil in the plains is dark rich alluvial, in the hills a red gravelly soil.

Although the survey of the Gawilgurrh Circar was not completed by the old

Gawilgurrh Circar. Hyderabad survey under Major Brown, still a few remarks about it here will complete these short memoirs of the Hyderabad Circars.

The Gawilgurrh Circar is bounded on the north by the British districts of the Central Provinces and also by the Taptee river, on the east by the Wardah river, on the south by the Circars of Mahore and Bassim, and on the west by the Narnulla Circar.

Its area was about 4,256·75 square miles.

Its 25 pergunahs were Karinja, Mangrool, Talagaon, Moortejapoor, Nandaygaon, Rithpoor, Oomrawattee, Kolapoor, Durreapoor, Kura, Budnaira, Ellichpoor, Gawilgurrh, Melghat, Jangar, Silona, Katkali, Byragur, Annair, Saori, Seerusgaon, Huvarkhid, Damangao, Rupagar and Nair.

The chief rivers are the Taptee, Wurdah, Poorna, Chundrabagha, Sapan, Sipna, Gargu, Bamla and Konad.

The principal road from Hyderabad through Nandair and Oomrawattee to Nagpore passes through this Circar.

The chief towns and villages are Mohkat, Raingahan, Rupagur, Amnair, Katkali, Byragur, Silona, Damangao, Opudkhera, Ellichpore, Karasgao, Surusgao, Palla, Hewurkhaid, Nair, Rithpore, Tensa, Kura, Nandgaon, Majerkhaid, Mulkhaid, Pulluskhaid, Budnaira, Oomrawuttee, Koorum, Monna, Durreeapoor, Tugaon, Moortijapoor, Hudgaon, Komburgaon, Papul, Karinja, Mangrul, Talagaon, Mandgaon.

The Gangra pergunah is very hilly, but the rest of this Circar consists of long gentle slopes with good and abundant drainage channels.

It will be treated of more fully in the account of Mr. Muliberan's survey of the Berars.

The Ghunnapoora Circar is bounded on the north by the Circars of Shahabad and Koilkondah, on the east by that of Davercondah, on the south by the Pengull Circar, and on the west by that of Mulkhair.

Not including the Amrabad Circar, which has been treated of separately, this Circar contains 1,080 square miles, of which 163 square miles are under wet, and 201.25 square miles under dry cultivation.

The Circar is divided into 7 pergunahs—Ghunnapoora, Kundoor, Bandapilly, Yennamungundlah, Tendcondah, Avanjah and Koodgull.

There are hills between Gopalpett and Ghunnapoora which are covered with fine timber and bamboos.

The chief river of this Circar is the Mootoo Vag.

There are three good roads—first from Hyderabad to Bellary, second from Kurnool to Hyderabad, and third from Hyderabad to Gooty.

The chief towns and villages are Ghunnapoora with a hill fort now in decay, Kundoor, Bandapilly, Yennamungundah, Tandcoondah and Palmoor.

There are fine tanks at Billakull, Chundapoor, Rungapoor, Munanoor and Ghunnapoora.

There are some fine ancient temples at Munanoor.

The soil is a red sandy soil approaching to black loam in the lower valleys, but it is nowhere very rich.

Indigo is grown at Polkapully.

These talooks of Sironcha, Albaka, Noogoor, Cherla, Bhudrachellum and Rakapilly were not taken up at all by the old Hyderabad survey.

They now form the British district called the Upper Godavery District, and will be treated of at length in the second part of this Report.

The Golconda or Hyderabad Circar is bounded on the north and north-west by the Medduck Circar, on the east by Bhonagheer, on the south and south-east by Davercondah, and on the west by Shahabad and Koilkondah Circars.

It has a total area of 1,615.5 square miles, most of which is under cultivation. There are few or no hills except in the immediate neighbourhood of Hyderabad.

The 12 pergunnahs of this Circar are Golconda, Moonagal, Alloor, Shevareddy-pett, Murkoda, Dhoondgal, Umunpett, Furucknuggur, Hyatnuggur, Balapoor, Lonawadda and Patancherra.

The principal roads almost all branch off from the city of Hyderabad or the cantonments of Secunderabad, and diverge off to all the more important places in the Dominion. The great roads are those to Nagpore, Poona, Aurungabad, Bombay, Madras and Masulipatam.

The chief rivers are the Moosy, Budrahl and Yentair.

The chief places of note are Hyderabad, the capital of the Nizam's dominions, on the banks of the Moosy river, 1,672 feet above the level of the sea, with a population of about 200,000. The Nizam's palace, the Wazeer's palace, the principal mosque, and the British Residency on the opposite bank of the Moosy (which is here spanned by a nine-arch bridge of elliptical arches 56 feet span and 18 feet rise, 24 feet broad), and several palaces of the nobles of Hyderabad are well worthy to be seen.

Secunderabad, probably the largest cantonment in India, 1,837 feet above the

sea, is garrisoned entirely by Madras troops ; in the town there are perhaps 5,000 houses and 34,500 inhabitants.

Golcondah, 7 miles west of Hyderabad, a ruined city with a fortress deemed by the natives to be impregnable, now used as a treasure place and state prison. The ancient mausolea of the kings of Golconda are wonderful structures, about 600 yards from the fort. They are ornamented with stucco and with the porcelain coloured tiles for which India was famous.

The mines of Golconda are a myth; the diamond mines are at Purteal, in the Kummummett Circar, and at Golconda there was only an establishment for cutting and polishing the stones.

Alloor, Moongal, Shavareddypett and Fort Patuncheroo, Dhoondgul, Murkada, Ballapoor, Khyruttabad, Hyatnuggur, Lonawadda, Furrucknuggur with fort, and Bolarum, a British cantonment.

There are no very large tanks in this Circar, though they are very numerous.

The two finest are the Hussein Saugor, 3 miles long by 2 miles broad, at Secunderabad, and the large tank to the south-west of the city of Hyderabad, which in the rains is 17 miles in circumference ; it is fed by a canal from the river Moosy.

The Jaulnah Circar is bounded on the north by the Maiker Circar, on the east

Jaulnah Circar. by that of Bassim, on the south by Patree, and on the west by the Duolatabad Circar.

The area of the Circar is 2,457 square miles, 36·5 of which belong to Scindhia, Holkar and other Mahratta Chiefs ; 1,514 square miles are under cultivation, little or no rice being grown in this Circar.

It is divided into 10 pergunahs—Jaulnah, Roshungao, Purtoor, Rumjane, Umbud, Bokerdhun, Dhabady, Laud, Saugei, Yekthoon and Peepree.

The chief towns and villages are Jaulnah, on the right bank of the Koondulka river and half a mile to the north,—the British cantonment—Roshungao, Purtoor, Munta, Runjane, Karlah, Umbad, Bokerdhun, Dhabaddy, Serusgao, Laud, Saugei, Yekthoon, Peepree and Bara Telgaon.

The principal rivers are the Koondulka, Kulleany, Doodna, Poond, Giryā and Sookna.

The main roads are—first, Secunderabad to Jaulnah ; second, Jaulnah to Aurungabad ; third—Jaulnah to Nagpoor ; fourth, Jaulnah to Hingoli ; fifth, Jaulnah to Sholapoor ; sixth, Jaulnah to Ahmednugger ; seventh, Aurungabad to Mominabad ; and eighth, Aurungabad to Ellichpore.

One eighth part of the Jaulnah Circar is occupied by steep barren hills.

The Koilkondah Circar is bounded on the north by the Beder Circar, on the east by those of Medduck, Hyderabad, Shahabad and Ghunnapoora, on the south by Ghunnapoora Circar, and on the west by the Mul-khair Circar.

Koilkondah Circar.

The area is 1,831·75 square miles, of which 70·5 are rice-producing lands, and 551 are cultivated with cereal crops not requiring much irrigation.

It is divided into 12 pergunahs, viz., Koyor, Koatpully, Doraveed, Tandoor, Vula, Purgy, Kodungal, Raichor, Hassanabad, Moojathapoorum, Koilkonda and Andakee.

The places of any note in this Circar are Koilkondah, with a hill fort strongly fortified, Koyor, Mittakadoor, Koatpully, Doraveed, Tandoor, Sooltanpoorum, Narainpoorum, Vula, Purgy, Kodungal, Raichoor, Shekapoor, Goondmall, Hassanabad, Moojathapoorum, Suncherla, Vennachaid, Andakee, Koasghee and Murrykull.

The chief rivers are the Tandoor, Moolamurry, and some small streams which flow southwards into the Kistnah river.

There are very few tanks, and nearly all are of small dimensions.

The largest are those at Daolatabad and Mittakadoor.

The principal roads are those from Hyderabad to Muddoor, Hyderabad to Wakat, and Hyderabad through Tandoor and Shorapoor to Bellary.

The general appearance of the Circar is hilly : nearly all the southern part is crowded with hills, and the Rayer plateau occupies the northern part.

It is not in a very flourishing condition.

The Koolburga Circar is bounded on the north by that of Kullianée, on the north-east by Beder Circar, on the east by Mulkhair, on the south by the Circars of Mulkhair and Suggur, and on the west by Nuldroog Circar and the Sholapoor district of the Bombay Presidency.

The area of this Circar is 1,559·75 square miles, of which only 13·75 square miles are grown with rice, and 986·5 square miles cultivated with dry grain crops.

It is divided into 6 perganahs, *viz.*, Koolburgapett, Kumlapoor, Membal, Heyroor, Parwuttabad and Ferozabad.

The chief towns and villages are Koolburga, with strongly built fort of granite and wet ditch, Chenchunsoor, Drotungaonpett, Kumlapoor with hill fort, Koolgoonda with ancient temples, Parwuttabad, Ferozabad with a dilapidated fort, Boozrook, Hallian, Siroor, Heyroor with fort, and Neembal.

The chief rivers are the Bheema, Benitora and Moolamurry.

There are few roads in the Circar : one from Koolburga passes through Parwuttabad and joins the Hyderabad and Shorapoor road at Ferozabad.

The soil is a red gravelly soil with here and there black loam.

The general aspect of the country is hilly, with small ranges to the north, and long slopes and detached hills to the south. The flat ground is in the valley of the Benitora.

The Kowlass Circar is bounded on the north by the Nandair Circar, on the east by that of Medduck, on the south and west by the Beder Circar, and on the west by Nandair.

The area of this Circar is 1,492·5 square miles, of which 699·25 are cultivated, 206·75 square miles being grown with rice.

It is divided into 6 perganahs, *viz.*, Kowlass, Inkull, Ootaloor, Gandaree, Sathooly and Narainkhaid.

The chief towns and villages are Kowlass with a fort, Inkull, Bichkoonda, Chakodupgal, Mudnoor, Anagaon, Ootaloor, Sunkarampett, Gandaree, Sathooly, Kullianeept, Bolarum and Narainkhaid.

The only river of note is the Manjera.

There are two good roads, one to Hingolee and one to Jaulnah.

The western portion of the Circar has a tabular range composed of trap. The northern and eastern portions contain granite hills.

The Kullianee Circar is bounded on the north by the Nandair Circar, on the east by that of Beder, on the south by Koolburga, and on the west by the Nuldroog Circar.

It contains an area of 584 square miles, 388·5 of which are cultivated with dry grains and 2·5 grown with rice.

There are only 2 perganahs, *viz.*, Kullianee and Pertapoor.

The chief places of note are Kullianee, in which is the Jagheerdar's palace, fort, several mosques, temples and durgahs, and two annual fairs are held.

Pertapoor, Rajasoor, Muntalla, Goundgaon and Ladavantee.

The rivers in this Circar are the Jhavina, 80 yards broad, Chaulky, 20 yards broad, and a branch of the Bennithora river.

The only main road is that going to Poona and Sholapoor.

There are many extensive flat-topped table-lands about 2,000 to 2,300 feet above the sea, and much thick brushwood jungle, but no timber save in the mango and tamarind groves.

The soil is a red gravelly soil lying on laterite on the hills ; in the valleys a dark vegetable mould mixed with round boulder stones, with every here and there grey granite rocks cropping out.

The Kummummett Circar is bounded on the north by that of Warrungul, on the east by the Godavery river, on the south by the Masulipatam district of the Madras Presidency, and on the west by the Nelgoondah Circar.

The area of the Circar is 5,495·75 square miles, of which 265 square miles are under cultivation with dry grains, and 198·25 are grown with rice.

There are 11 perganahs, *viz.*, Kummummett, Lingaruny, Jullypully,

Kundicoñdah, Anantagherry, Pochumcherla, Muddeera, Sankagherry, Kuningherry, Hussonabad and Kuppelvoy.

The chief towns and places of note in the Circar are Kummummett with a hill fort or droog, and a lower fort at base of hill with a rampart 15 feet thick, the southern face of which has a brick parapet and embrasures for 60 guns; Nealla, Condapilly, Rajeshwarpoorum, Punmee, Pochumcherla, Moodeegonda, Madhawarrum, Gundashee, Anantagherry with hill fort, Kulloor, the chief town of the Kuningherry pergunah, Chandragoondah, Paluncha, chief town of the Hussanabad pergunah, Nugram, Nellipah, Murkood, Ashwarapett, chief town of the Sunkagherry pergunah, Dhummapett, the three diamond mine villages of Partcal, Codavatacuttoo and Oostapully, Garlah and Moogetalah, both with forts.

There are some fine capacious tanks in this Circar. Those at Kodadoo, Madhawarrum, Soolravah, Kulloor, Kullakotta, Muddeera, Lingagoodium, Bijaram, Toomilcherroo and Pollarum are amongst the largest.

The principal rivers are the Godavery, Kistnah, Pullair, 100 yards broad, Moongair, 150 yards broad, an outlet of the Parkul lake, Waira, 80 yards, Kulle-lair, Kimmersang and Moorair.

A low range near Jullypully and the Kulloor, Goojoor and Wallaby ranges are the principal hills in this Circar; they are all in the northern and eastern portions of it.

There are two roads from Hyderabad to Muslipatam, which both pass through the district—one from Muslipatam to Nagpore, and one from Paluncha to Hyderabad.

The hills are granite with greenstone and mica; the soil in the plains is a rich black vegetable mould.

There are some hot springs at Boogah, and also in the bed of the Godavery river near Buddrachellum, which are several degrees warmer than the temperature and flow continuously.

The survey of the Mahore Circar was scarcely commenced by the old Hyderabad surveyors, so that, properly speaking, it ought not to be inserted in this place, but to make the old dominions of the Nizam as complete as possible the information is recorded here.

Mahore Circar.

Mahore Circar was bounded on the north by the Gawilghar Circar, on the east by the Wurdah river, separating it from the Chanda district of the Central Provinces, on the south by the Ramgeer and Nandair Circars, and on the west by those of Nandair and Bassim.

Its area was about 7,738 square miles, a great part of it occupied by jagheers and sarfikhah mahals, jungle and hills, so that it is probable that not more than 1,300 square miles of this large area was under cultivation.

The principal places of note in this Circar are Mahore, Shevala, Manata, Tamsa, Hadgao, Warona, Omerkhair, Hansing, Pusad, Giroli, Danoo, Chicholi, Chickni (Sarfikhah Mahal), Sindkheir, Mahagao, Kinwat, Korta, Kurar, Rati, Oomraoti, Baregao, Talegaon, Yeotmahl, Balagao, Gulig, Khair, Wone, Mardi, Wai, Saitachand or Edullabad, Badi and Karda, Warki and Kelapoor (Sarfikhah Mahals).

The Salabari range of hills runs through the Circar, and about Yeotmahl the range spreads out into broad table-topped plateaus having peaks entirely composed of argillaceous iron ore. Formerly the Circar abounded in smelting furnaces, but now this branch of industry is entirely suspended.

The principal rivers are the Penganga, Warda, Nirgura, Yedurba, Kuni, Sattuala, Wagari, Arun, Pusnad and Anraoti.

The country in and about the Penganga valley and in the Telingana or Pewani Mahals is very hilly and wild, covered with thick forest, and, generally speaking, almost deserted.

Few places in India have suffered more from the depredations of Rohillas, freebooters, dacoits and Pindarries than the unfortunate Circars of Mahore and Ramgir.

Maiker Circar.

The Maiker Circar is bounded on the north by that of Narnulla, on the east by Bassim, on the south by the Circars of Patree and Jaulna, and on the west by those of Baithulwaddy and Daolatabad.

Its area is 3,581.75 square miles, of which 1,170 are under cultivation. No

rice is grown in the district. It is divided into 14 *perganahs*, *viz.*, Maiker, Wakud, Rissood, Futteah Khelda, Mulkapoor, Ghat Bower, Jafferabad, Umrapoor, Dowalghat, Sirpoor, Guroomattergaon, Sheolee, Loonar and Sindkeir.

The places of note are Maiker, Sooltanpoor, Bara Unjunny, Chota Unjunny, Dhonegaon, Lonee, Shailgaon, Wakud, Rissood, Burr, Mope, Futteah Khelda, Mulkapoor, Samder, Beebee Ghaut, Boner, Jafferabad, Umrapoor, Sirpoor, Sheolee, Loonar and Sindkeir.

There is a salt lake at Loonar 3 miles in circumference, formed in a natural chasm which has been caused by subsidence.

The Rissood tank is a peculiarly fine one.

The rivers are the Poorna, Penganga, Kaylnah, Umnah and Damnah.

The roads from Jaulnah to Kamptee and Bombay to Kamptee pass through this Circar.

The Maikar Circar has a population of about 30,000. It may be considered to be a hilly country throughout, being filled with offshoots from the Sichel range.

The Medduck Circar is bounded on the north by Nandair, on the east by the Circars of Eilgundel, Mullungoor and Bhonagheer, on the south

Medduck Circar. by those of Golconda and Bhonagheer, and on the east by Beder and Kowlass.

Its area is 2,642.5 square miles, of which 492.5 are cultivated with rice and 670.25 with dry grains.

It is divided into 12 *perganahs*, *viz.*, Medduck, Goodoor, Nursapoor, Kuteapoor, Pattoor, Takmall, Gudjvel, Veyloor, Toopraney, Ibrahimpatam, Udloor and Kullupgoor.

The chief towns and villages are Medduck, a walled town with hill fort, very strong and fortified with cannon; Veyloor, Cochunpully, Kullupgoor, Rajampett, Condah, Doobac, Moonpully, Goodoor, Mirsapoor, Muddoor, Putloor, Kuttahoor, Mominpett, Takmall, Gudjvel, Toopraney, Ibrahimpatam and Udloor.

The principal roads are five in number— from Hyderabad to Nagpoor, Jaulnah, Hingolee, Poonah and Eilgundel: they all pass through portions of this Circar.

The chief rivers are the Manjera, Puspoorkoodelly, Alberi Vag and Nundy Vag.

The tanks are very numerous throughout the Circar, the best are at Sungareddypett, Oondale, Anuntasagar, Byrundipba, Sungoopet, Toopraney, Goodoor, Nursapoor, Doobac, Chittapoor and Berbeepett.

There are some high broad ridges covered with jungle to the north and west of the district.

The Moodgul Circar is bounded on the north by the Suggur Circar and Sholapoor District of the Bombay Presidency, on the east by

Moodgul Circar. the Raichore Circar, on the south by the British District of Bellary, and on the west by Belgaum and Dharwar.

Its area is 3,420 square miles, of which 1,368 square miles are under cultivation.

It is divided into 12 *perganahs*, *viz.*, Moodgul, Mooski, Raoducoondi, Sindunoor, Medereyn, Kooshtugi, Kandagherry, Tawaragherry, Gungavatee, Copal, Yelboorga and Nulmongel.

The chief towns and villages are Moodgul, with a fort, Mooski, Kurridikul, Lingasagoor, a British cantonment, Honhulli, Juldroog (hill fort), Goodoor, Sindunoor with fort, Raoducoonda, Salgoomdi, Seedapoor, Nowle, almost deserted, Jurahal, Medduki Mehal, Tawaragherry, Kanakgherry, Humpirdroog, Copal, Gangawatti, Annagoondi, Yelboorga, Mungaloor, Hammasagar, Nulmongel.

The chief rivers in this Circar are the Toongbhurda, Kistna, Muskimella, Sindunurnulla, Nowlenulla and Boochinulla.

There are fine large tanks at Kurridikul, Moondoorgikilaruhutti, Hooligodda and Yainyegodda.

The principal roads are the Bellary to Poona road by the Mustoorghat, and the Hyderabad and Bellary road through Tandoor and Shorapoor.

There are a few small hills in the Raoducoondi, Salgoondi, Moodgul and Copal *perganahs*.

The **Mulkhair Circar** is bounded on the north by that of Beder, on the east by Koilcondah, on the south by the Yedagerry Circar, and on the west by that of Koolburga.

Its area is 2,475·5 square miles, of which 149·75 square miles are under rice cultivation, and 1,154 square miles are grown with cereal crops.

It is divided into 11 *perganahs*, *viz.*, Mulkhair, Chincholy, Chittapoor, Kaulaghee, Ammurchintah, Wuddaman, Muktul, Ootkoor, Kuddachoor and Kankooroty.

The most noteworthy places are Mulkhair, Chincholy with a fort, Muktul on highroad between Bombay and Hyderabad, Ammurchintah, Wudduman, almost in ruins, Lalcattah with a circular fort, Poolmandy, Ootkoor with a large fort, Narainpettah with a mint, Lakapoor, Muddor, Goodoomitheal and Halkutty.

The Mulkhair Circar is sometimes called the Moozaafirnuggur Circar.

The rivers are the Kistnah, Seena, Moolamurry, Bheema, Benithory, Khangany, Hookachitty Vag and Yellalma Vag.

The hill fort of Chindraguddah is strongly fortified and kept in good repair. That of Goodabelloor is in ruins.

The Hyderabad and Bombay road goes through the Circar, as does also the road from Hyderabad to Bellary *via* Shorapoor.

All the northern part of the Mulkhair Circar is hilly.

The Mullangoor Circar is bounded, on the north by the Ramgir Circar, on the east and north-west by Eilgundel, on the south-east by the Wurrungal Circar, on the south by Bhonagheer, and on the west by Medduck Circar.

It contains 403·5 square miles, 42·5 of which are cultivated for rice crops, and 35·25 for dry cereal crops.

There are only 3 *perganahs*, *viz.*, Mullangoor, Hassanabad and Rajahgopalpett.

The Circar is nearly deserted.

The places of most note are Mullangoor, Hassanabad, Sundagherry, Rajahgopalpett, Nunganoor,—contains a stone pillar on a flat-topped rock, on which is carved a human figure 12 feet high,—Chinnakodoor and Thatkul.

Mullangoor, the chief town of the Circar, contains a hill fort, the top of which is 690 feet above the plain and 1,701 above the sea. Its summit can only be reached from the east side, and the fortifications are strong and skilfully planned. Traditions say it was built by a certain Rajah Molong. It was taken, about 1507, by Kootubshah, the first king of Golcondah.

There are no rivers or nullahs of large size in the Circar. The largest tanks are at Kesaputnum, Singapoor and Mullangoor, but there are more than 100 others, of various sizes, whose waters are used for irrigating the rice land.

There is a high range of hills in the S.E. part of the district.

The soil in the hills is a dark sandy soil with granite outcrops, and on the high lands a red gravelly soil. The soil in the plains is a dark sandy soil similar to that of the hills.

The Narnulla Circar is bounded on the north and east by the Gawilghur Circar, on the south by Bassim and Maiker Circars, and on the west by part of the Nimar District of the Central Provinces.

Its area is 4065·75 square miles.

There are 17 *perganahs*—Peepulgaon, Pathoor, Ballapoor, Bandgaon, Barsee, Taklee, Pinjer, Koorunkhair, Akolah, Boorgaon, Budnaira, Akote, Argaon, Jamode, Narrail, Budnair, Patoola and Dhyundah.

The chief places of note are Narnulla, a strong hill fort, Akote, Budnaira, Chichona, Argaon, Baumbir, Jamode, Julgaon, Kootul, Patoolla, Punchgooan, Dhyundah, Nandoora, Narrail, Mulkapoor, Koorunkhair, Akola, a British cantonment, Ballapoor, Peepulgaon, Bandgaon, Pathoor, Barsee, Taklee, Boorgon, Mhan, and Pinjer.

The principal rivers are the Katee Poorna, Poorna, Nullgunga, and several small streams flowing into the Poorna from north and south.

The main road from Jaulnah to Oomrawattee passes through the Circar.

The Nilgoondah Circar is bounded on the north by the Circar of Würrungal, on the east by Kummummett, on the N. W. by Bhonagheer, and on the south and S. W. by Daverconda Circar.

Its area is 1,689·25 square miles, of which 211·75 are cultivated with rice, and 330·5 with dry grains.

There are 7 perganahs, viz., Nelgoonda, Kungull, Podichaid, Arwapally, Nagoolapad, Oondracondah and Oorlagondah.

The chief towns and villages are Nelgoonda with hill fort, Soonapett on the road from Masulipatam to Hyderabad, Annunggullo, Oondracondah, with hill fort, deserted, is only a collection of huts, Nagoolapad, Oorlagondah with hill fort in ruins, Kanserabad, Mamdialla, Ponagaon, Tipurti, Sungum, Hyateepamla, Yeddavally, Kungull, Annantawarum, Podichaid and Arwapally.

The principal rivers are the Moosy and Pullair, the Hullea Naddee and Vandair.

The tanks at Cherlapully, Pangull, Boorgudda, Amunagalloo, Hyateepamla, Madawarum and Goweranarrum are large and lined with stone.

The small ranges of Arwapally, Kandugatta and Oondracondah are in this Circar, but the country is generally flat and unbroken.

The main roads are those from Hyderabad to Kummummett, Hyderabad to Masulipatam, and Hyderabad to Madras, via Nelgoondah.

There are some fine old Jain temples, built of black granite at Pittalmurry, Yainoomullapally, Ponagood and Godavud, the sculpture of which, in architectural relief, is very superior.

The Moosafirkhans built by Meer Allum, Prime Minister in 1803, along the Hyderabad and Masulipatam road, are spacious and handsomely finished, consisting of a handsome courtyard and gateway, mosque and 30 to 40 small separate rooms.

Iron ore is abundant in the hills. The Nuldroog Circar is bounded on the north by the Nandair Circar, on the east by those of Kullianee and Koolburga, on the S. and S. W. by the Sholapoor Collectorate, and on the west by the Poorainda Circar.

The area is 1,483 square miles, of which 960 are cultivated.

The whole Circar is hilly. It is divided into 8 Perganahs, viz., Nuldroog, Alloor, Toljapoor, Thair, Dhaki, Allund, Goonjatee and Daraseo.

The chief towns and villages are Nuldroog, with a hill fort of considerable strength situated on a peninsula and small island in the Booree river, and is said to have been built by one Rajah Nullalloor; Tooljapoor, Thair, Dhoki, Goonjatee, Daraseo, Sullagur, the jagheer of the Nipani Rajah, Oomerghee, Beylim and Allund, celebrated by its doorgah, the burial-place of the Landlasaheb, a Mahomedan pir or saint, the Badsah of Authunpoor, in Upper India, who left his kingdom to become a wandering fakir. He is worshipped by the Mahomedans under the name of Landla Murshaid, and by Hindoos as Ragharachaitun.

The rivers in this Circar are the Shaiona, 70 yards broad, the Hurri, Bori and Bhennatora.

There are no tanks except the one at Nuldroog.

The Nundair Circar, the largest in the Nizami's dominions, is bounded on the north by Maiker and Mahore, on the south by Medduck, Kowlass, Beder, Kullianee and Nuldroog Circars, on the east by Rangir and Eilgundel, and on the west by the Daroor and Patree Circars.

Its gross area is 10,000 square miles, of which 3,700 is arable cultivated land.

Its average height above the sea is 1,200 to 1,300 feet.

The eastern portion of this Circar is hilly; the hills are basaltic—sometimes columnar, as at Oodyghur—and clay ironstone, in which are numerous cave temples.

There is granite in the Nirmull perganah.

It is divided into 42 perganahs, viz., Nundair, Lant, Oodyghur, Daigloor, Kandahar, Loghan, Kotagheer, Rajoory, Kudkah, Barapully, Owsa, Yellagudpa, Oolah, Bheemgull, Moodkhair, Indoor, Urdapoor, Boath, Kutta, Nirmull, Banauli, Moodhull, Kodarupoor, Bysah, Bokur, Rajoorah, Buswuntnuggur, Palljam, Boden,

Vankdee, Kasumbait, Manda, Balcondah, Latur, Taimboorny, Bansur, Julkote, Kheir, Issand, Jellalpoor, Barrud and Kunaidkhaid, the whole comprising 3,009 villages, of which 117 are deserted and 157 are jagheers.

The chief towns and villages are Nundair, on the Godavery, on the highroad from Hyderabad to Hingolee, with a half-ruined fort and 4,000 houses, and Seikh college on the spot where Gooroo Govind was assassinated. The Nizam allows the revenue of five villages for its support. Oodgheer, Daigloor, Kandahar, Loghan, Lant, Sheradone, Soanpett, Kotagheer, Rajoory, Kudkah, Barapully, Owsa, Indoor, Malegaon, with an annual fair in November and December, where horses bred on the banks of the Bheema and Nurbudda are sold, besides silks, cloths, jewellery, brass and copper utensils, Boath, Hutta, Nirmul, Banauli, Moodhull, Kodarupoor, Rajoorah, Buswantnuggur, Pollian, Boden, Vankdee, Manda, Balcondah, Latur, Julkote, Julalpoor and Barud.

The rivers are the Godavery, Manjira, Koomta, Sooda Poorna and Masolee.

Good magnetic iron ore is found in the Bheemgull pergana, which mixed with other ore found in the Indoor pergana makes capital steel. An inferior ore is found in the Laharra pergana.

The jungles are fine, full of timber trees, especially Teak, Yipee, Toomkee, Sirman, Undooga, and Sundinka.

The Nirmull hills cover the whole eastern portion of the Circar, clothed with thick jungle and abounding in fossils.

The soil is a rich black loam. The population 80,000.

The Pangull Circar is bounded on the north and east by Ghunnapoora, south and S. W. by the Kistnah river, and on the west by the Mulkhair Circar.

Pangull Circar.

The area is 1,255.5 square miles, 172 of which are grown with rice, and 323.5 square miles with dry grain cultivation.

There are 6 perganahs, viz., Pangull, Juttapool, Gopallpettnugur, Kundanool, Khattakota and Soogoor.

There are hill forts at Pangull, Byamagoottah and Purtilly.

The chief towns and villages are Pangull, Wonparty, Soogoor, Gopallpett, Khattacota, Juttapool, Streerungapoor, Minchalcottah and Kundanool.

The hills commence from Juttapool and run eastwards; there is another mass between Pangull and Khattacota.

The rivers are the Kistnah, Juttapool Nullah and Kookachetty Vag.

There are large tanks at Streerungapoor, Yellattoor, Uprilla, Goomadium, Totpomla, Kondoor and Pentelly.

There are two roads—one from Hyderabad to Kurnool, and one from Hyderabad to Kuddapah.

The Patree Circar is bounded on the north by the Poorna river and Bassim Circar, on the east and south by Nandair, on the south by the Godavery river, and on the west by the Jaulnah and Bheer Circars.

Patree Circar.

The area is 1,596 square miles, of which 630 are cultivated. It has 12 perganahs—Patree, Ashta, Purbaney, Valoor, Kasuddy, Neelburrum Takli, Koombarien Takli, Logaon, Pachulgaon, Imtoor, Jheri and Bogaon.

There are 442 towns and villages, the chief of which are Patree, a walled town, Ashta, Purbaney, Valoor, Kasuddy, Neelburrum Takli, Koombarien Takli, Logaon, Imtoor, Pachulgaon, Manwuth, Paidgaon and Peepulgaon. Part of the Nirmul range comes into this Circar. The population is about 30,000.

The principal rivers are the Godavery, Poorna and Doodna.

The roads from Hyderabad to Jaulnah, Mominabad to Hingolee, Jaulnah to Mominabad, and Jaulnah to Nandair.

The Purainda Circar is bounded on the north by the Bheer and Daroor Circars, on the N. W. by the Ahmednuggur, and on the south-west by the Sholapoor Collectorate, and on the east by the Nuldrug Circar.

Purainda Circar.

The area of Purainda is 2,061 square miles, of which the Panch Mahals take up 585 square miles; the balance, therefore, 1,476 square miles, of which 786 are cultivated, belongs to the Nizam's dominions.

The Panch Mahals are 4 or 5 villages belonging to the Sholapoor District, *viz.*, Barsee, Pangree, Angulgaon, Pangaon and Rutunjun.

It was said that Purainda Circar formerly had 19 pergasnas with a revenue of 14,24,983 rupees; but now it is divided into 9, *viz.*, Purainda, Wassi, Yeet, Mandwa, Kati, Marudi, Mahall, Bhooni and Undergaon.

The chief places of the Circar are Purainda, on the Seena river, once large and populous, with a fine fort built of stone. The ruins of Purainda cover nine square furlongs. Wassi, Yeet, Mandwa, Kati, Bhooni, Barsee, Wyrag, Nanur, Jowla, Mankessur, Pangaon, Pangree and Pimpulgaon.

The most remarkable buildings are the mosque at Kati, the "Tappoo Kolomb" at Deygaon Bohera, the temple at Wyrag, the Purainda fort, the temples at Sonarag, Donnegaon, Kudkulgaon, Jetwaddy, Pangoor and Dhamungaon.

The rivers are the Seena, 150 yards broad, and the Yaddera.

The only large tanks are at Karigaon and Wassi.

There are good a many hilly tracts in the southern part of the Circar.

The soil is a rich dark alluvial soil resting on soft limestone.

The Pyton Circar is bounded on the north and west by Daolatabad, on the east by the Jaulnah Circar, and on the south by the Godavery river.

The area of the Circar is 446 square miles, of which 34·5 are jagheers belonging to Scindhia, Holkar and other Mahratta chiefs; of the 411·5 square miles belonging to the Nizam 251·5 are under cultivation.

There are only 3 pergasnas, *viz.*, Pyton, Chendravadah and Dourwaddy.

The chief towns and villages are Pyton and Chendravadah,—both on the Godavery,—Lakagaon, Basha and Dourwaddy.

The principal rivers are the Godavery, Seeew and Gunday.

The two roads from Jaulnah to Ahmednuggur and from Ahmednuggur to Aurungabad pass through the Circar.

The Raichore Circar is bounded on the north by Suggur and Mulkhair, on the east by Pangull, and south by the British districts of Kurnool and Bellary, and on the west by Suggur and Moodgul Circars.

The area of the Circar is 2,917 square miles, of which 1,166·75 are cultivated.

Raichore is divided into 8 pergasnas—Raichore, Allumpoor, Guduwal, Beymdona, Bhunoor, Moosuhukul, Cavital and Jaliehal.

The chief towns are Raichore, with fort, Allumpoor, with a fort, Pangloor, Guduwal, with a fort and its own Rajah, who pays 60,000 rupees a year as tribute, Durroor, Borewelli, Gutt, Muddoor, Anuntapoor, Teej, Marchaid, Oopair, Goloor, Kaindroog, Bhunoor, Cavital, with fort, Panunkelloor, Deo Droog and Jaliehal.

The Alumpoor Jagheer is worth 1½ lakhs of rupees a year.

The Guduwal Raj, divided into 2 pergasnas, Teej and Daroor, about 4 or 5 lakhs.

The rivers are the Toongbhurda, Kistna, Koonvag and Mooskimulla.

The tanks are Keeapoor, Kondairoo, Iktial, Yailkoor, Sungal, Raichoor and Jaliehal are [*sic*] large and hold water throughout the year.

There are a few hills in the Cavital and Jaliehal pergasnas.

The roads from Hyderabad to Kurnool and from Hyderabad to Adoni pass through the Circar.

The Ramgir Circar is bounded on the north by the Mahore Circar, on the east by the Pranhita and Godavery rivers, separating it from the Central Provinces, on the south by the Circars of Kummummett, Wurrungul and Mullangoor, and on the west by the Mahore, Nandair and Eilgundel Circars.

The Manickghur range spreads over the Circar to the north; there are also a few hills towards the south-west portion of the Circar.

The principal rivers are the Godavery, Manair, Pranhita, Penganga and Morwancha.

The roads from Chinoor through Sirpoor to Nagpoor and from Sironcha to Nagpoor both pass through the north of the Circar.

There are few tanks in this district and of no great size.

The area of the Circar is 6,356·25 square miles.

The chief places of note are Chinoor, Utnoor, Kahal, Bela, Manickghur, Sirpoor, Tandoor, Madapoor, Ramgir and Jangao.

The Circar is very poor, but the timber in it is worth a great deal and might be made much of.

No report has been made of this Circar.

The Shahabad Circar is sometimes included in that of Davercondah, but it has been thought advisable to keep it separate, as it ought by rights to be so.

It is bounded on the north and east by Goleundah or Hyderabad, on the south by Ghunnapoor, and on the west by the Koilkondah Circar.

Its area is 329·75 square miles, of which 270 are under cultivation.

It is divided into 3 pergunas, *viz.*, Shahabad, Ippatoor and Konadoor.

The chief places are Shahabad, a fortified town, Lyalabad, Konadoor, Ippatoor, Doopully, with fort, and Dhapala.

The roads from Hyderabad to Muddoor and Hyderabad to Bellary pass through the Circar.

There are few or no hills.

The Suggur Circar is bounded on the north by Koolburgah, on the east by Yedagherry and Mulkhair, on the south by Raichore and Moodgull Circars, and on the west by the Sholapoor Collectorate.

Its area is 2,128·50 square miles, of which 1,000 are under cultivation.

It is divided into eight pergunas, *viz.*, Suggur, Shorapoor, Shahpoor, Gogi, Mululi, Jeywurgi, Kurukondi, and Isomalpoor.

The places of note are Suggur, Shorapoor, with hill fort, Shahpoor, Gogi, Mululi, with old fort, Jeywurgi, Kurukondi, and Joomalpoor, with a fort.

The rivers are the Kistnah and Bheemah, besides several good-sized nullahs.

The road from Hyderabad to Bellary passes through the Circar.

There are a few hills in the S. E. portion of the Circar, known as the Shorapoor range.

The Circar was made over to the British at one time owing to the bad conduct of the Rajah of Shorapoor, but it is now again under the Nizam's Government.

The Wurrungul Circar is bounded on the north by the Circars of Ramgir, Elgundel and Mullangoor, on the east by those of Ramgir and Kummummett, on the west by Bhonageer, and on the south by Kummummett and Nelgoondah.

It contains 3,230 square miles, including 36 square miles of other Circars.

A strip of country on the eastern boundary is exceedingly hilly, but the general appearance of the country is a level surface rising into gentle slopes and swells with numerous detached hills. There is not much timber excepting in the eastern hills. Iron ore is abundant about Indurpurata and Bhoputtepettah.

The Circar is divided into 14 pergunas, *viz.*, Wurrungul, Sammoat, Moomunur, Kotaguttyelgopr, Kolajpoor, Valupcondah, Bolicondah, Purkul, Vizianuggur, Gatepurty, Pakhal, Oopul, Chandragherry and Hessainabad or Kotacondah.

The chief towns and villages are Wurrungul, which was formerly the capital of the ancient kingdom of Telingana or Andray, about 1067. In 1309 Allauddeen, the sovereign of Delhi, fought against it in vain. In 1324 it was taken by Alligh Khan but restored, and in 1421 its Rajah was slain in battle and the place taken by Khan Azim, a general of Ahmed Shah Bahmaui, the Sultan of the Deccan.

The town is defended by three enclosures, the inner one being a 24-sided fort with bastions at the angles, still in good repair; the second enclosure, 500 yards distant, is of earth, with towers and a deep trench outside it; the outer enclosure is also an earthen entrenchment, 24 miles in circumference, with a deep broad ditch outside it. There is an ancient Jain temple with 1,000 pillars, but now greatly ruined. Ragoondah, Atkoor, Zuffergurh, situated between two fortified hills, Inkoortee, Wurdunapett, Korawa, inhabited by Kokwars, a tribe of Gonds, Ambolmoolkanoor, Yelgoor, Kolajpoor, Purkul, Gatepurty, Pakhal and Oopul.

The tanks are numerous and cover an area of 120 square miles.

There is a pretty lake at Purkul, the only natural lake in all the Nizam's dominions.

The road from Hyderabad to Mahdooipoor passes through the Circar.

The soil on the table-lands is a reddish brown gravelly soil, very good, and towards the centre of the Circar rich black mould is met with.

The Yedagherry or Hoomanabad Circar is bounded on the north and east by the Mulkhair Circar, on the south and west by Suggur and the Bheema river.

The area is 344.75 square miles, of which 9 square miles is grown with rice, and 176.25 cultivated with cereals.

There are 4 pergunas—Yedagherry, Kowloor, Kaloor and Yeragale.

The chief places are Yedagherry,—with hill fort, a large tank, and formerly a place of trade,—Hullegherry, Kowloor, Bellagherry, Toomkoor, Keenpand, Sangrouly. Kaloor, Moondaghee, Yeragale, and Ludlapoor, with a Kaaba.

The only river of note is the Bheema.

The whole Circar is hilly. The road from Naraenpett to Yedagherry and on to Shorapoor is the only one of any importance.

In bringing the first part of this Report to a close it is necessary to mention that although there are geographical memoirs of most of the Circars, drawn up by the officers in charge of the old Hyderabad Survey, there are only partial descriptions of portions of the Circars of Davercondah, Golcondah, Koilecondah, Kummummett, Mulkhair, Nelgoondah and Yedagherry, whilst there are absolutely no papers connected with the survey of the Circars of Godavery, Gawilgurh, Mahore, Narnulla, Ramghir, Shahabad and Suggur, the first, third and fifth of which were not surveyed at all by the party, but were completed by Mr. Mulheran's party between the years 1855-1866.

PART II.

The resumption of Survey operations in the Nizam's Dominions was sanctioned by the Marquis of Dalhousie, then Governor General of India, in G. O. G. G. of the 21st October 1854, and Mr. James Mulheran, senior Sub-Assistant Great Trigonometrical Survey, was promoted to the grade of full Surveyor and appointed to the executive charge on a salary of Rs. 600 per mensem, commencing from the 1st January 1855.

Mr. Mulheran possessed the entire confidence of the late Surveyor General, Sir Andrew Waugh, which he had won not only by his former zealous and successful services, but also by the knowledge that in districts which had been surveyed by him his name lingered in the affectionate remembrance of the people; and he was warmly recommended to the good offices of the Resident at Hyderabad. It must be borne in mind that the old Hyderabad Survey had been stopped as much by the want of tact of the Superintendent as by any other cause, and it was the Surveyor General's wish to depute a man upon whom he could thoroughly depend to take charge of the operations when resumed. He could scarcely have chosen a more worthy person than Mr. Mulheran, who speedily gained the confidence and support of all the officials, not only by his readiness to oblige and make himself useful, but also by his thorough support of the local orders and usages, and by his determination to prevent any loss to the inhabitants by reason of the detached survey parties, a very difficult thing to prevent.

It has been customary in this as in all other topographical surveys to submit at the close of the professional year, *i.e.*, on or about the 1st October, a complete report of the operations with the survey for the preceding 12 months, both the field work, consisting of triangulation and topographical details, and the recess work, *viz.*, the computations and fair maps.

Short *résumés* of these reports will give a full account of the labours of the party year by year.

The party under Mr. Mulheran's orders left Deyrah Doon on the 8th January 1855, *en route* for Ellichpoor, which station was reached on the 4th April, and the party located in the cantonments.

The recess season of this year was devoted to making acquaintance with the capabilities of the country about to be surveyed, clearing the old stations of the great arc series (the bases of the triangulation about to be laid out), and otherwise preparing for the triangulation, and also in affording instruction to Mr. McGill on the use of plane table and theodolite.

In addition to his other duties Mr. Mulheran taught the Ameens who were about to make the putwaree surveys of the Berars under the Deputy Commissioners the use of the plane table, as also a rigorous system of check measurements, and the principles of surveying generally, and there is no doubt that this teaching had a marked effect on the outturn and style of the putwaree surveys of the Assigned Districts, for which Mr. Mulheran received the cordial thanks and acknowledgments of the Resident, Mr. Bushby.

The party took the field on the 18th October 1855, and completed during the field season of 1855-56 the triangulation of 2,500 square miles, and fixed 264 points for the detail operations.

Iron ore was discovered by Mr. Mulheran at Khassla, one of the peaks of the Yeotmahl range. This ore was sent for analysis to Dr. Balfour at Madras, who pronounced it to be extremely rich, containing 64.4 per cent. of pure iron; and as there was abundance of fuel and good roads in the vicinity there is no doubt this was a valuable discovery. In former years iron-smelting was carried on in these parts, but the trade had not been followed for many years. In clearing the hills for the trigonometrical stations two distressing accidents occurred to the Gonds employed in felling timber, one of which ended fatally. Subsistence money was granted to the widow, and an offer to employ her two eldest boys was made. Whilst employed in teaching the putwaree Ameens the use of the plane table Mr. Mulheran was struck with the quickness with which they picked up details of plane table surveying, and conceived the idea that native agency would do well for the topographical surveys. With the approval of the Surveyor General the experiment was made, and, owing to the rigorous check established upon their work at its commencement, and attaching them to European assistants during the field season, who were held responsible for the fidelity of the details and the accuracy of the survey, it may be said to have been a success, and all the topographical surveys in India have followed the example thus set by Mr. Mulheran. These native surveyors were taught their work and trained to their survey duties by the assistant, Mr. Chamarett, lately transferred from Captain D. G. Robinson's survey in the Jhelum and Rawal Pindi districts of the Punjab, than which a better school could not have been found. The system adopted by Mr. Chamarett is detailed at length in Appendix A.

During the field season of 1856-57 1,820.75 square miles of country were topographically surveyed by Messrs. Leigh, Chamarett and Smith, assisted by native surveyors Ramchunder Bapoojee, Pandarao and Baparao, all of which was examined, tested and pronounced satisfactory, with the exception of some 75 square miles which was obliged to be resurveyed and substituted for that originally submitted.

The triangulation, consisting of 432 triangles, was executed by Messrs. Mulheran and McGill. One disagreeable event is recorded. The Naib of Edulabad, a petty chieftain in the Mahore Circle, on the party first entering his sarfikhmahal, imprisoned the tindal and 21 of the kalassies who were erecting survey marks for the triangulation, and it was at one time doubtful whether the area of triangulation assigned to the party could be completed. Prompt measures were, however, taken by the Resident; and the Naib, on receiving fresh and more stringent orders from the Hyderabad Durbar, rendered Mr. Mulheran great assistance.

During the recess season of 1857 the execution of the fair maps was entrusted to Messrs. Leigh and Chamarett, assisted by N. S. Ramchandra. The computations were undertaken by Messrs. Mulheran, McGill, Smith and N. S. R. Daly.

At the close of the calamitous year when mutiny was rife throughout the land Mr. Mulheran's party calmly and quietly continued their work, and when the regular time for taking the field arrived they all unhesitatingly obeyed the orders given them, marched to their respective areas, and proceeded with their survey as usual. Nor was this unattended with danger, for the Neemuch mutineers, having plundered their medical stores *en route* to Ellichpore, were in their vicinity, and Mr. McGill was attacked by a party of Rohillas at the village of Gragao and compelled to retire. This had the effect of lessening the area of triangulation, and only three principal and 278 secondary triangles were observed for during the field season.

The topography executed by Messrs. Leigh, Chamarett and Smith, native surveyors Ranchunder, Pandarao, Baparao 2nd, Janardhunrao and R. Daly amounted to 2,537.75 square miles, and was pronounced by Mr. Mulheran to be most satisfactory.

The fair maps were turned out by the above assistants and the first three native surveyors above named.

Native surveyor Baparao 1st died on the 16th March 1857, having suffered severely from the effects of fever. As there was some talk of converting the old fort of Sultangherry into a Central Jail for the Berars, Mr. Chamarett, at the request of the Deputy Commissioner, North Berars, made a large scale survey of it.

During the field season of 1858-59 it was deemed advisable not to employ the whole strength of the party in the Assigned Districts, as the country south of Edulabad and Mahore was infested by large gangs of plundering Rohillas, who were sufficiently numerous and daring to oblige Brigadier Hill to move against them. In the action which took place at Baisood Captain McKinnon was killed and several officers were wounded. Messrs. McGill and Daly were therefore directed to push the triangulation over the Marikghur plateau, whilst Mr. Mulheran, assisted by Mr. Smith, carried a double series of principal triangles into the Nagpore territories, connecting with and picking up as many as possible of the stations of the old triangulation by Captain Stewart and Lieut. Morris and the stations fixed upon by Captains Vaurrenan and Grant, of the Revenue Survey, who were just breaking ground in the Central Provinces. Although Mr. Mulheran was obliged to leave his work and go to Nagpore to escape Tantia Topce, who had crossed the Nurbudda and was in his, [*sic*] and although Messrs. McGill and Daly were compelled to flee for their lives from Edulabad, as several parties of Rohillas were after them, the party completed 4,963 square miles of triangulation in the Central Provinces and as far east as the Weingunga river.

The data thus obtained through the exertions of this party was most valuable to the correctness and trustworthiness of the Revenue Survey details executed by Captains Vaurrenan and Grant, and was the means of connecting the Central Provinces Revenue and Hyderabad Topographical Surveys in a fairly satisfactory manner. A Report of the Nagpore Branch Series by Mr. Mulheran will be found in the Appendix B.

The topographers also met with obstruction and delay, being obliged more than once to leave their work and escape to Pussad, where there was a small force of cavalry and police, so that only 1,194.75 square miles of detail survey were finished.

The general and geographical maps were prepared during the recess by Messrs. Leigh and Chamarett, &c.

It having been found absolutely necessary to resurvey the hilly portions of the Gawilghur Circar, known by the name of the Gangra Pergana, which, although commenced by Major Brown, had never been finished, Messrs. Mulheran and McGill during the field season of 1859-60 triangulated it in order to fix points for the plane table surveyors.

This triangulation covered nearly 3,000 square miles.

The topography was of a harassing and disagreeable description, being the connecting steps between the old and new surveys. This duty, by no means the least important of a survey party, was entrusted to Mr. Chamarett and the native

surveyors, and necessarily prevented a large outturn of work. The country was triangulated by Mr. Chamarett, the points computed and projected in the field, the plane-tables set at work.

The way in which this was done may be described briefly as follows :—

A portion was resurveyed and substituted for Major Brown's survey. Another portion outside of this was corrected in terms of the difference between the true and false positions of forts and villages as determined by Mr. Chamarett.

Another portion outside of the second portion was corrected in terms of the difference between the true and false positions of forts and villages, assuming the values of the points west of the former boundary as those given by Major Brown.

The full report of the necessary work is given in Appendix C.

The area of the topography done during the field season of 1859-60 was 1,093 square miles.

During the field season of 1860-61, as the triangulation was sufficiently ahead of the topography, Mr. Mulheran, the Superintendent, a most skillful photographer, devoted himself to take a series of photographs of the different races and tribes in the Berars, and thus carried out the orders of Government conveyed to him by the Resident at Hyderabad.

He also collected statistical information necessary for his report on the final completion of his survey. There was therefore no triangulation executed this season, but the whole strength of the party was put upon the topography of the Gangra purgunnah and the adjoining talooks, and an area of 2,333 square miles completed.

The Gangra purgunnah is notoriously unhealthy, being covered with forest and rank vegetation, and more than ordinary precaution was taken to prevent failure. Although the detail surveyors suffered considerably from fever, they all continued at their posts and completed the survey of the areas allotted to them.

The triangulation during the field season of 1861-62 was laid out to be taken up by two parties, *viz.* Mr. Mulheran, with Messrs. McGill and Farrell, were to take up the principal work south of Rajore, and Messrs. Chamarett and Daly were to carry on a secondary series across the Maikilgarh Pass towards Sironcha, but unfortunately this programme could not be carried out in its entirety, for Mr. Mulheran was prostrated by severe illness and obliged to proceed for medical aid and treatment to Chandah, the nearest civil station. His disease assumed a most complicated form, and prevented his taking any further part in the field operations. Notwithstanding this, 3,500 square miles of triangulation of a superior description was executed, and great credit is due to the assistants who completed it in the face of many obstacles of no ordinary nature.

The area topographically surveyed amounted to 1,227 square miles, done by Mr. Smith and four native Surveyors. Mr. Leigh, the senior civil assistant of the party, had suffered so severely from repeated attacks of jungle fever that he became physically unfit to take the field, and remained at Ellichpore during the field season, when, with N. S. Baparao, he was engaged in clearing off the arrears of mapping and in compiling a general map of the Berars on the scale of 4 miles=1 inch for the Resident at Hyderabad. Mr. Leigh was one of the few survivors of the old Hyderabad Survey, had been with it since 1817, and shortly after the end of the recess took his pension, having served Government faithfully for 45 years.

Mr. Mulheran's photographs and description of the tribes of Berar was printed and submitted to Government, and to complete this report it is added in the Appendix D.

Selections from his report on the Gangra purgunnah, also printed, will be found in the Appendices E, F, and I.

The report on the Chickulda plateaux by Assistant Surgeon Alexander Bagges will also find a place in this report, and is given in the Appendix G. Mr. Bullock's report on the Gonds is given in the Appendix H. At the close of this field season the Hyderabad Survey lost two of its efficient hands, one by transfer, the other by death, in addition to Mr. Leigh pensioned. Mr. McGill was transferred to the Chota Nagpore party under Captain Depree; and Mr. Daly, who had commenced as a proba-

tionary sub-assistant surveyor and been promoted to 3rd class sub-assistant, died from the effects of jungle fever.

The triangulation during the season of 1862-63 was extended up to Sironcha, and covered an area of 4,333 square miles. This area included
1862-63. portion of the Utnoor, Manikgurb, Nirmull and Ramgurb forests, all more or less deserted and dangerous to European life. It is a subject of congratulation that this has been accomplished without loss.

The topographical detail parties filled in an area of 2,379.75 square miles before returning to recess quarters at Ellichpore; 296 linear miles of boundary between Bismur and Bassim, which had been omitted by Major Brown, was surveyed, and the boundary in question has been inserted on the fair maps of the old survey.

During the season of 1863-64 the party was divided into three detachments. One, under Mr. Mulheran, triangulated a small tract near Mahore
1863-64. which had been left undone by the old Hyderabad survey; the second, under Mr. Chamarett, continued the triangulation through the Upper Godavery talooks, failing, however, to extend the triangulation to Bhudrachellum and Rakapilly, which are situated at the junction of the Sevory and Godavery rivers, about the parallel of $17^{\circ} 30'$; whilst the third, under Mr. Smith, carried on the topographical details.

The season's work in triangulation amounted to 2,550 square miles.

The topography, executed by Messrs. Smith, Farrell, Chennell and Maine, and four native surveyors, amounted in all to 2,686.25 square miles.

Mr. Mulheran produced beautiful specimens of the rock-cut temples and caves of Ellora and Ajunta, as also of the Mokurba at Aurungabad and of the remarkable fort of Daolatabad.

These photographs were submitted to the Viceroy and the Secretary of State for India.

The triangulation of the Godavery talooks was completed during the field season of 1864-65, and amounted to 1,993 square
1864-65. miles.

The topography amounted to 3,875.5 square miles, the whole party (with the exception of the officer in charge, who carried on the triangulation) being employed upon it.

The area surveyed included the district of Sironcha, the Rangeer Circar, as also resurveys of the talooks of Oomerkheir, Pushad, Mahore, Kadgao, Shevala, Manata, Samsa and Warona. Mr. Maine met with a severe accident owing to the accidental discharge of his gun, which injured three of the fingers of his right hand, and which prevented his finishing the area of topography allotted to him.

The field season of 1865-66 saw the completion of all the details of the Hyderabad survey. The topography embraced the five remaining
1865-66. talooks of the Upper Godavery district, viz., Nugger, Albaka, Cherla, Bhudrachellum and Rakapilly, also a small slip of resurvey by Mr. Farrell, making a total outturn of topography for this the last field season of 1,998.75 square miles. Besides this the demarcation and survey of the boundaries of the four districts of Akola, Oomraottee, Mehker and Woon of the province of Berar, the aggregate length of which was 1,061 linear miles, was completed. A small amount of triangulation necessary to effect a junction with the old survey, chiefly in the tract adjoining the Penganga river, was done by Mr. Mulheran, amounting in all to 195 square miles.

The cold weather of 1866 saw the party engaged in the survey of a part of the Central Provinces, and although all the maps of the Hyderabad survey were not out of hand at the close of the recess the 1st October 1866 has been taken as a convenient date to mark the close of the one and the taking up of a new field of survey. Mr. Chamarett's report on the topography of the Godavery talooks is given *in extenso*.

Nilgarh station is situated in the Betul pergunna of the Hoshangabad district, about 19 miles' direct distance west of Betul, one mile east of the
Description of the hamlet of Badugaon, and 6 miles S. E. of Shandri, a large Gond
Station. village. The station is fixed on a high swell of a range of hills bordering the south bank

of the Tapti and is called Nilgurh, after a neighbouring place of Hindu worship. Water is obtained from a well at about half a mile from the station, near the foot of the east side of a hill from whence a tolerable road has been cut to the station. The old platform was found in good order on removing the upper mark stone, and digging down a second was found, on a level with the surface of the ground, and correctly placed with reference to the normal of the upper one. A pillar has now been constructed over the lower mark for the support of the theodolite, and the upper mark stone replaced at a distance of 35·6 inches above the lower one.

The platform is 17 feet square in exterior dimensions, and surrounds the pillar at an interval of 3 inches. Both platform and pillar are constructed of flat stone.

Dhar. Dhar Station is on a very high table-topped hill in the Gawilgurh range or Sautpoora hills. It is named from a Gond village, situated in a transverse mountain valley, about one mile S.W. of the station, and included in the Naib Tehsildari of Atner, district Betul. The village of Derpani is on a table-land three miles north, and Ramla, comparatively a large village, is five miles N.W.

The only practicable ascent to the station is from the north *via* Derpani.

The former platform at Dhar was found in good order and 4 feet 11·5 inches high. The new platform is constructed of flat stones, and the centre pier for the instrument is well insulated for the observers. The distance between upper and lower marks is 4' 11·5" and the foundation is 18' deep.

Ner. Ner Station is upon a small isolated hill about four miles W.S.W. of the town called Pinglai Ner, to distinguish it from other places bearing the same name. The station is upon a small building at the S.E. angle of the enclosure surrounding the temple of Pinglai Bowani.

The village of Sawalkhera is two miles north of the station. The old lower mark was found in the floor of the building apparently undisturbed, and therefore taken for the centre of the new platform. The floor has been excavated down to the rocky part of the hill, upon which foundation a pillar has been erected to the length of 21 feet 3·1 inches. The distance between the upper and lower marks is 19' 9·1", the pillar is surrounded by a scaffolding upon which the observers stood perfectly isolated from the instrument.

Ashti. Ashti Station is 1½ miles west of the village of that name, in Purgunnah Sugaon about sixteen miles S.E. of Ellichpoor. Sugaon is a kasba about five miles north. Takalkhera (on the highroad) is a large village about four miles N.E. The old station was found in good order and consisting of an internal pillar of brickwork surrounded by an earthen mound. The diameter of this column being nearly 6 feet, it was necessary to adopt the following arrangement to isolate the instrument from the observers:—the pillar was raised 18 feet by a cylinder of brickwork 4 feet in diameter, and a scaffolding resting upon poles erected round the pillar, leaving a space of three inches in breadth between the masonry and the stage.

Wirur or Birul. Wirur or Birul Station is upon the higher of two isolated little trap hills situated in the plains south of the village of Birul. This is a jagirdari or maffi village in the purgunnah of Talegaon, Circar Gawil. Daman-gaon lies east 3 miles; Badgaon south 4 miles; Sendurjana 7 miles south; Dipoor west 8 miles; Mandua north-east 2 miles; Terora, purgunnah Mangrul, N.E., 2 miles. The Kasba Talegaon is S.S.E. 11 miles; the Kasba Mangrul is 12 miles east; the Kasba Kura 10 miles north; and the Kasba Majerkhera N.W. 14 miles. The old platform was in good order and 11 ft. 6 inches high, but the upper mark differed 4 inches from the lower.

The new station consists of a pillar of strong masonry 13 ft. 8·6 inches high, exclusive of 2½ feet foundation. In consequence of the difficulty experienced in procuring stones and materials for making a regular platform, it was found expedient to use a stage or scaffolding round the pillar, and the instrument accordingly stood perfectly isolated from the observers.

The materials of the old platform have been banked up round the pillar to within 8 feet of the top; distance between upper and lower marks 13 feet 8·6 inches.

Ikjhera. Ikjhera station is on a steep knife-edged or prismatic-shaped hill, rising considerably higher than the basaltic range of which it forms a part. This hill is locally known by the name of Daga. The hill Chaosala, about 5 miles E.S.E., is about 200 feet higher, and is the most eminent point of the range. The village of Ikjhera, half a mile west of the station, is now Ujar, but the village of Asola, about $1\frac{1}{2}$ miles west, is large and well known. Both these villages belong to the purgunnah of Talegaon, Sirkar Gawil. Talegaon is about 17 miles N.N.E.

No lower mark was found at this station, therefore the old upper mark has been used for the centre of the new platform. The pillar and isolating annular of the new platform are built of masonry, and the foundation is upon the rock *in situ* about 9 inches below the surface of the hill. The lower mark is engraved on the rock, and the distance between it and the upper mark is 4 feet 5·6 inches; the old platform was 4 feet 3·5 inches high and in good order.

Kopdi. Kopdi station or Chor Kopdi is on an isolated eminence rising above the general level of the trap plateaus. The station is named from a ruined village about 2 miles south in the Kasba of Darwar, purgunnah Karinja. Borgaon is east of the station 2 miles, and Bandegaon about $1\frac{1}{2}$ miles N.N.E. The old platform at this station was found in good order and 7 feet high. This new station has a pillar of masonry and isolating annular of stone and mud, both having a foundation of 2 feet 2 inches. The lower mark is engraved on a large stone, and the distance between it and the upper marks is 72·1 inches.

Bham. Bham station, or Kanibaka Tikri, Talooka Karhar, Circar Wahur, Suba Berar, is on a peaked eminence rising a little above the flat trap range. It is called after the deserted village of Bham (2 miles S.E.), the ruins of which indicate the once flourishing condition of the place. This part of the country, however, suffers greatly from scarcity of water. An old baoli was fortunately discovered in the ravine half a mile north of the station, which being cleared out afforded a supply for the camp. There was a difference of 11 inches between the upper and lower marks of the old platform. It was therefore necessary to build an annular of the new platform of good masonry with a foundation of 2 ft. The lower mark is engraved on a large stone, and the distance between it and upper mark is 64·4 inches. The pillar was found to be steady. Kotar 14 miles, Lakur, 14 miles south, Terora 6 miles south, in Taluka Mahagaon and on the south bank of the Aran, Hinri is 3 miles N. E.

Sakri. Sakri station is on a range of trap hills $1\frac{1}{2}$ miles south of the village of Sankri, Taluka Pusad, Zillah Circar Mahar, Suba Berar. Pusad is 5 koss S.W.

The following is a list of villages circumjacent to the station :—

N.		E.		S.		W.
Etola, 2 koss.	Taluka Chickni.	Kaligaon, 2 koss.	(Tal Chic	Sanikhera, 1 koss.	Talukas Ganj and Chickni.	Oradgaon.
Tankli, 3 koss.		Konegaon, 3 koss.		Bori, 1 koss.		Mahagaon.
Bilora, 4 koss.		Malegaon, 3 koss.		Kasola, 4 koss.		
Chirkuta, 5 koss,		Havelni, 2 koss.		Kanakhera, 6 koss.		
Digris, 3 koss.		Onoli, 1½ koss.				
Taluka Karinja.						

The former platform was found undisturbed 3 feet 9 inches high, and the upper mark differing 3 inches from the lower. The pillar of the new platform is built of good masonry, and annular of stone and mud, both having a foundation of 2 feet 3 inches. The distance between the upper and lower marks is 55·5 inches, which is also the height of platform above the surface of the hill. The pillar was found perfectly steady.

Mahur. Mahur station is on a lofty table-topped hill 1 mile S.E. of the well-known town of Mahur and east of the fort, from which it is separated by a narrow ravine. The road to the mat or temple passes a few yards west of the station. The old platform was apparently in good order, but the upper mark differed considerably from the lower one. The distance between the two marks was measured, 7 feet 6 inches.

The new station consists of a pillar of strong masonry and isolating annular of stone cemented by mud, both having a foundation of 2 feet. The upper mark is 96·8 inches above the lower one, and the latter is on a level with the hill surface. There is also a middle mark exactly 4 feet above the lower one. The pillar, though built of masonry and completely isolated from top to bottom, did not afford a perfectly steady support for the instrument. The telescope was found to be subject to slight vibration when people walked about the platform, but the level apparently was not affected.

Bitergaon station is on an eminent table-topped point of a rugged chain of hills 2·75 miles north of the village of Bitergaon, Purgunnah Omerker.

Bitergaon.

These hills are evidently a branch of the Sheoni range, although disconnected by a transverse valley through which the Penganga finds an outlet. Omerker is a well-known village about 17½ miles due west of Bitergaon. The old platform was found in a ruinous state, and the mark stone had been removed from its proper place.

A list of the members of the party, with dates of promotion, &c.

It is considered advisable for the sake of easy reference to show this list in a tabulated form, and it will be only necessary here to refer to the removals and transfers and other matters which affected the strength of the party.

1855.

Mr. Peyton's pay was drawn in the abstract of this party for one week only, but he never joined.

Mr. McGill joined on the 8th April 1855, and was transferred to the Chota Nagpore Survey on the 6th September 1862.

Mr. Smith joined the Survey on 21st September 1855, resigned his appointment on the 20th September 1865, and was reappointed to this Survey in his old grade on 25th May 1866.

1856.

Native Surveyor Baparao 1st joined on 1st March 1856, and died on the 16th March 1857.

Mr. Chamarett joined the party on 1st April 1856, and remained with it till its close.

Native Surveyor C. Leonard joined on 8th April 1856, and resigned his appointment on the 20th September 1856.

Native Surveyor Ranchunder Bapoojee joined on the 3rd May 1856, and remained with the party till the Survey was completed.

Native Surveyor Kasarao joined the party on the 5th May 1856, and was discharged as incompetent on the 13th April 1857.

Native Surveyor Pandarao joined the party on the 13th May 1856, and remained with it till the close of the operations.

Mr. Leigh joined the Ganjam Survey party on the 1st June 1856, and was admitted to pension on the 1st October 1862.

Native Surveyor Baparao 2nd joined on the 1st October 1856, and remained with the party to the close of the Survey.

Native Surveyor Amratrao joined the party on the 1st October 1856, and was discharged as incompetent on the 1st January 1857.

Native Surveyor W. J. Daly joined the party on the 1st June 1857, and was permitted to resign on the 8th September 1858.

Mr. Daly entered as a probationary surveyor on the 1st August 1857, was promoted to 3rd class sub-assistant on the 1st November 1858, and died on the 25th November 1862.

Native Surveyor Janardhunrao joined on the 1st November 1857, remained with the party till 22nd May 1863, joined the Rewah Survey in October 1863, and was retransferred to the Hyderabad Survey party on the 1st October 1864.

Native Surveyor Mypatrao joined the party on the 1st October 1858, and resigned on the 1st June 1864.

Native Surveyor Sheik Qomer joined on the 1st November 1858, and remained with the party till the close of its operations.

Mr. R. D. Farrell joined the party on the 1st December 1860, and is still with it.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Mr. A. Chennell joined the party on the 10th November 1862, and remained with it till the Survey was completed.

Messrs. M. J. Ogle and C. A. Scanlan joined together on the 1st May 1864, and remained till the close of the operations.

Mr. B. Maine was an apprentice in the party from 1st November 1863, but obtained the sub-assistant's post 1st July 1864.

Mr. C. Neale was transferred from the Rewah Survey on the 1st May 1866; he took no part in the field work of this Survey.

Names.	Date of joining.	Re-appointed	Native Surveyors on Rs. 15 to 60.	Apprentice on Rs. 30.	3rd Class Sub-Assistant on Rs. 107.	2nd Class Sub-Assistant on Rs. 140.	1st Class Sub-Assistant on Rs. 174.	Senior Sub-Assistant on Rs. 220.	Civil 3rd Assistant on Rs. 259-12-3.	Civil 2nd Assistant on Rs. 309-12-3.	Senior Civil Assistant on Rs. 400.
J. Peyton	1 Jan. 55	..	..	..	..	1 Jan. 55	Resigned on the 8th January 1855.	..	..	..	..
G. McGill	8 April 55	..	..	..	8 April 55	1 July 58	8 April 61	Transferred 6th September 1862.	..	..	..
J. B. Smith	21 Sept. 55	25 May 68	..	..	21 Sept. 55	1 Dec. 58	21 Sept. 61	1 Sept. 63	Resigned 20th Sept. 1865.	..	..
Baparao 1st	1 May 56	..	1 Mar. 56	Died on the 16th March 1857.	..	..	..	..	..	..	..
A. Chamarett	1 April 56	..	..	..	..	1 April 56	1 May 56	4 May 58	16 Aug. 61	12 Apr. 63	1 Apr. 65
C. Leonard	8 April 56	..	8 April 56	Resigned on the 20th Sept. 1856.	..	..	..	..	..	..	..
Ramchunder Bapoojee	3 May 56	..	3 May 56	..	..	..	..	..	..	..	..
Kasarao	5 May 56	..	5 May 56	Discharged on the 13th April 1857.	..	..	..	..	..	..	..
Pandarao	13 May 59	..	13 May 56	..	..	..	..	..	..	..	..
J. Leigh	1 June 56	..	..	..	..	..	..	1 June 56	15 Aug. 61	..	..
Baparao 2nd	1 Oct. 56	..	1 Oct. 56	..	..	..	..	..	..	..	..
Amrutrao	"	..	"	Discharged on the 1st January 1857.	..	..	..	..	..	..	..
W. J. B. Dudley ..	1 June 57	..	1 June 57	Resigned on the 8th September 1858.	..	..	..	..	..	..	..
R. S. Daly	1 Aug. 57	..	1 Aug. 57	..	1 Nov. 58	Died on the 25th November 1862.	..	..	..	..	..
Janardhanrao	1 Nov. 57	1 Oct. 64	1 Nov. 57	Resigned on the 22nd May 1863.	..	..	..	..	..	..	..
Mypatrao	1 Oct. 58	..	1 Oct. 58	Resigned on the 1st June 1864	..	..	..	..	..	..	..
Sheik Oomer	1 Nov. 58	..	1 Nov. 58	..	..	..	..	..	..	..	..
R. D. Farrell	1 Dec. 60	..	..	..	1 Dec. 60	1 Nov. 63	1 Feb. 56	..	..	..	..
A. Chennell	10 Nov. 62	..	..	1 Nov. 62	1 May 64	1 May 66	..	..	..	..	..
B. Maine	1 May 63	..	..	1 Nov. 63	1 July 64	..	..	..	..	..	..
M. J. Ogle	1 May 64	..	..	..	1 July 63	1 May 68	..	..	..	..	..
C. A. Scanlan .....	"	..	..	..	9 Sept. 63	1 May 66	..	..	..	..	..
C. H. T. Neale	1 May 66	..	..	..	..	..	..	..	..	..	1 May 66

N.B.—Janardhanrao had been, previously to his appointment as a Native Surveyor, one of the two Moonshees or Mootsuddes who are appointed for the collection of statistics. All the Native Surveyors except Sheik Oomer were Brahmins, relations of the Deshmook of Balapoor.

In order to make a proper conclusion to this the professional report of the Hyderabad Survey, it only remains to notice the conduct of the members of the party, but owing to the lamented death of the Superintendent, Mr. James Mulheran, it is impossible to do so with any degree of justice.

He alone, from his intimate connection with most of them for many years, was in a position to do so, but from what can be gleaned from the reports and correspondence files there is no doubt that the conduct and behaviour of the members of No. 2 Topographical Party was all that could have been desired.

True it is that there were a few breaches of etiquette and slight derelictions from the path of duty, but the tender heart of Mr. Mulheran would, it is felt certain, have cast a veil over these very occasional misunderstandings, and it is not thought desirable to reopen these questions in this place. Where all have worked honestly and well it seems invidious to remark upon individuals, but it is only an act of justice to bring to notice the conduct of Mr. Andrew Chamarett. For many years this assistant was Mr. Mulheran's senior and second in command. He superintended the plane-tablers, taught them, inspected them, and was in a

general way responsible for their efficiency and for the accuracy of their work. In office he was in charge of the draftsmen, and he it was who got up the maps, both general and geographical. As an honest, hardworking and thoroughly efficient surveyor Mr. Chamarett is second to none in the department. Mr. Daly's early death deprived the Government and the Department of the services of a thoroughly good surveyor. Messrs. Leigh, McGill, Smith and Farrell have throughout served honestly and well.

The native surveyors, Ramchunder, Pandarao, and Baparao, have proved themselves to be efficient surveyors, and their labours in both field and office contrast [*? compare*] favourably with those of the European members of the party.

The problem which Mr. Mulheran elected to prove, viz., whether natives could be available and efficient as Topographical surveyors, has been proved correct.

It is matter of hearty congratulation that the survey of this immense tract of country, embracing nearly 100,000 square miles of country, begun in 1816 and ended in 1866, has at last been terminated, and that this the last and final report upon the operations has been at last concluded.

APPENDIX K.

DATED CAMP NAGARAM, 20th March 1866.

From A. CHAMARETT,
Civil Assistant, No. 2 Topographical Party,
Hyderabad Survey,

To J. MULHERAN, Esq.,
In charge No. 2 Topographical Party,
Hyderabad Survey.

SIR,—I have the honour to report the final completion of the five talooqs of the Upper Godavery districts. The several assistants who were employed upon the survey having joined me I have this day commenced marching with the party *en route* to Ellichpore.

2. In reporting the completion of the talooqs above referred to, I beg to submit in detail a narrative of the operations of the party you have placed under my charge, and to furnish a description of the country delineated by myself and the assistants, anticipating that a report of such a nature will be called for sooner or later.

3. The following assistants marched with me from Ellichpore on the 10th November 1865, and were employed with myself in the plane table survey talooqs of Nugur, Albaka, Cherla, Badrachelam and Rekapali:—

Sub-Assistants.—Mr. M. J. Ogle, Mr. C. A. R. Scanlan, Mr. A. W. Chennell, and Mr. B. A. Maine.

Native Surveyors.—Ramchunder and Janardanrao.

4. On the march the sub-assistants employed themselves in practising the use of the 7-inch theodolite and in cleaning and adjusting the same, in addition to which two extra boards were projected for Mr. Chennell and Ramchunder, as I was apprehensive about certain portions of the Nugur and Cherla talooq boundaries extending further than the limits of the first boards which were given to them would admit; arrangements for these extra boards were made by me prior to leaving quarters. The portion of work allotted to me being situated at the extreme east of the slip (*vide* sketch appended), I had the opportunity of dropping each assistant on his ground while I was at the same time making progress to my own. Every care has been taken to ensure accuracy, and the details carried sufficiently far out of the district boundary to form a junction with other surveys. The sketch appended to this report will afford an idea of the individual situation of the assistants, the extent of ground traversed by each, and the numbers assigned to the 15 minute plane table sections, to which I shall have occasion to refer hereafter.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Before the 1st of January all hands were actively employed, and the following statement shows the area finally submitted :—

STATEMENT.

Names.	Area, square miles.	Plane Table Nos.	Names of Talooqs surveyed.
Mr. Chamarett ...	321	13, 16, 17 & 18	Rekapali=265 square miles. Jeypore, Rumpa, and Nizam's dominions=56 square miles.
„ Ogle.....	310	9, 11 & 12	Rekapali = 129 square miles. Badrachelam = 104 square miles. Bustar, &c., &c.=77 square miles.
„ Scanlan	314	5, 6, 7 & 10	Cherla=161 square miles. Albaka=50 square miles. Bustar, &c., &c.=103 square miles.
„ Chennell	207	8, 10 & 11	Badrachelam=100 square miles. Cherla=34 square miles. Bustar, &c., &c.=73.
„ Maine	216	14 & 15	Rekapali=173 square miles. Nizam's, &c., &c.=43 square miles.
„ Ramchunder...	356	1, 2, 3 & 4	Nhgur=300 square miles. Albaka=55 square miles.
„ Janardhanrao..	155	13 & 14	Rekapali=139 square miles. Bustar, &c., &c.=16 square miles.
Total Area ..	1,879		

5. My own plane table sketches being situated adjacent to the boards upon which Messrs. Ogle, Maine, and native surveyor Janardanrao were engaged, I have not only found that their work was correctly executed, so far as I was able to judge by the details along junction lines, but from the frequent opportunities I have had of traversing the ground, making notes of details, and in fact by plane table intersections of objects from my own stations, I was fully satisfied with the care bestowed in delineating the difficult and forest-clad tracts entrusted to them. Mr. Chennell's execution of portions of boards Nos. 8, 10 and 11 was tested by an actual resurvey of about 20 square miles ; the revision was performed by Mr. Ogle, agreeably to your official letter dated Akola, 15th February 1866. A reference to this letter relative to further orders contained therein about the extension of the triangulation will be made, and explanations entered into, in the concluding portion of the report. Mr. Scanlan completed a very difficult tract of country, almost entirely of scarped ridges from 1,500 to somewhat in excess of 3,000 feet above the sea level ; the greater portion of this ground was previously traversed by me, and I trust the way in which he has portrayed the Doli fissures and the scarped ridges will give you satisfaction.

6. Owing to native surveyor Ramchunder neglecting to forward regular reports of his work, Messrs. Scanlan and Chennell were sent by me not only to inspect and report upon his progress, but to assist him if they considered it necessary, and to resurvey a portion as a test to the work performed by the native surveyor. These tests will be submitted to you for inspection, accompanied with a report from Mr. Scanlan of Ramchunder's plane table sketch, along with the original sections, on my arrival at Ellichpore.

7. Although the extent of topographical details completed this season by the party is small, fair allowances will, I trust, be made for the sundry disadvantages under which they laboured, the greatest being a journey of a distance in excess of 450 miles through unhealthy forests to the scene of operations and return to recess quarters. Of the seven parties detached on the plane table survey of the Upper Godavery district, Mr. Maine's, native surveyor Janardanrao's, and my own suffered to a very great extent from sickness, so much so that it was frequently difficult to decide how to act, having no medical aid at hand—the station of Dumagudium, where there is a medical officer, being situated at a considerable distance, carriage for the sick obtained

with much trouble, and those having the guidance of these detached survey-parties being prostrated themselves. With all our careful movements through the forests and unhealthy tracts, it was with the greatest regret I have already had to report to you of the death of three lascars from sickness contracted in the Sevri valley and Eastern Ghauts. The insalubrity of the former is so notorious that up to the present moment I have a number of men suffering from relapses of dysentery and fever. As a proof that the country adjoining the Sevri river is noted for sickness I might add that Mr. Ogle, who was employed on boards Nos. 9, 11, and 12, though some distance from its banks, did not escape from fever ; but all the others, working in the more north-western talooqs, were entirely free.

The following table exhibits the extent of each of the talooqs surveyed, with their population and cultivated area :—

NAMES OF TALOOQS.	No. of Villages.		Population, Souls.	Area in square miles.	Cultivation in square miles.	No. of souls per square miles.
	Inhabited.	Deserted.				
Rekapali	198	34	10,982	706	46.7	15.5
Badrachelam	69	30	7,313	204	9.4	35.9
Cherla	39	25	1,811	195	6.1	9.5
Albaka.....	15	4	762	105	2.3	7.3
Nugur	52	13	3,074	301	15.8	10.2

Rekapali talooq.

9. Rekapali is the chief village of the talooq, by which name it is known. It is situated in latitude $17^{\circ} 33' 57''$, longitude $81^{\circ} 20' 29''$.

In an easterly direction it is 2.4 miles of the Sevri river, and 2.8 miles south-east of the remarkable conical-shaped hill of Korkonda, 1,989 feet above the sea level, held in veneration by the people for the superstitious legends attached to it. The talooq is bounded on the north by Biji, of the Bustar dependency, and the States of Jeypore ; on the east by Rumpa, of the Madras Presidency ; and on the south by the Godavery river or Nizam's dominions. A considerable stream (the Sevri) flows through the centre of this talooq, and empties itself into the Godavery between the well-known villages of Kunaram and Wodaguram. Both banks of the Sevri are well cultivated, and in this respect Rekapali is by far the richest of the five sub-divisions treated here of the Upper Godavery district. Timber to a great extent, of first class quality, is floated down the Sevri from the tract known as the Biji jurisdiction. The agricultural products are jowari, rice, maize, cotton, pulses, wheat (in small quantities), castor seeds, and vegetables. On the eastern face of this talooq is a considerable mass of the Eastern Ghauts, occupied by a class of the hill tribe called Reddies, who resemble the Gonds in their habits. They cultivate jowari in insignificant patches on the spurs and slopes of the hill ranges. They converse in the Telegu language, are peaceably disposed, and seldom have in one spot a collection of huts for a village, but dispersed in every direction according to the most convenient positions for the fields of each family. The indigenous plants and trees found in these hills, upon which the Reddies live a great portion of the year, are the sago, palm, jack, plantain, ebony (of an excellent kind), oranges, limes, arrowroot, haldi, and a number of edible roots and bulbs, which they are exceedingly careful and tenacious about showing to strangers. The hills average in height from 2,000 to 4,600 feet above the sea level, they rise higher and higher from the Rekapali flank, till attaining the extreme elevation given above they fall gradually towards the Vizagapatam district on the sea coast. A sanitarium, it would appear, is a desideratum long felt in the Godavery districts. I would here beg to enter into the following description of the high range situated 32 miles in a direct line N.E. of Rekapali, which in every way would answer admirably.

10. The high range of hills east of the village of Marmedi, which forms the boundary for several miles between the Rekapali and Rumpa talooqs, appears to me to be a suitable site as a sanitarium for the Upper Godavery districts, and might be made easily accessible also to those on the Vizagapatam, Rajamandry, and Kokanada districts. The climate is delightfully cool throughout the day, and from its proximity to the sea coast there can be little doubt as to its salubrity. I visited the range in the early part of February, and though dressed in warm clothing felt chill even at midday, and worked from 8 a. m. till 4 p. m. on foot without the slightest inconvenience from the sun. The summits of these ridges are entirely treeless, but densely clad with foliage on the surrounding slopes and lower ranges, a few hundred feet below affording an inexhaustible supply of timber of all kinds, and bamboo for building purposes, access to which is by no means difficult. A few furlongs east of the ridge is a ravine with an ample supply of water from springs, lasting, from all accounts, throughout the year. One or two villages of the Rumpa talooq existed formerly on the borders of this ravine, but have been deserted since, owing chiefly to its being infested by wild animals. Though the summits are so wanting in trees, they are covered with good short feeding grass, thickly intermixed with a species of the stunted date-palm bushes. There is no soil whatever on these ridges for purposes of plantations or gardening, the surface being covered with strata of rocks, but the slopes and lower features seem to be good, with a description of a slightly black and reddish soil, and might be adapted for plantations.

Hill site suited as a sanitarium for the Godavery districts. In lat. $17^{\circ} 48' 26''$, long. $81^{\circ} 45' 8''$.

Climate.

Timber and Bamboo.

Water.

Grass.

Soil.

11. Your two Trigonometrical stations (named "Marigura" erroneously by Budram, flagman) are situated on the ridge just described, and, as determined by you, are elevated 4,048 feet above the level of the sea. The ridge east of this is somewhat higher,—being on the same range as your point (B peak), 4,570 feet in height,—is more extensive, equally convenient as regards water, and an excellent road might be constructed over the connection between these two flat ridges, which are only a mile and a half distant from each other.

Height of the range.

12. The road now existing from the Godavery bank through Rekapali up to the village of Sukmanri is over flat country, and could be constructed for wheeled carriages at a small cost. Sukmanri is situated at the foot of the hills, from whence the path leads to the high range over the lower ridges through the little hamlet of Marmedi, distant $2\frac{1}{2}$ miles from the former village, up to which the footpath winds along the spurs; the ascent is gradual, and not distressing to those on foot or dangerous to those on horseback. From Marmedi the path runs along the connection between the lower and upper ranges, almost over flat ground till it reaches the rise to the latter, which might be ridden over with safety, but is slightly distressing to the horse. The whole distance to the summit of the high range from the village of Sukmanri, allowing for windings, &c., is not more than six miles, and there exists, in my opinion, no obstacle for the construction of a very fair road over the lower ridges. In illustration of this a sketch is appended.

Present track, and feasibility for construction of a fair road.

13. There are fourteen tanks in tolerably good order in the Rekapali talooq, and traces of several fallen into disrepair, supposed to be centuries old, which might be improved to advantage. A second sort of black soil is found in strips, which together with the brown alluvial deposit is abundant on the river banks, good for dry grain. The rice soil, of a sandy appearance, is excellent when well mixed with manure and watered. The reddish clay with boulders is found on the slopes of hills, and yields a rich harvest of the large kind of jowari used by the Reddies, sown at the first fall of the monsoons and reaped in January. Timber of good quality does not prevail in this forest, but considerable quantities are floated down from Biji, as noticed above.

Tank, soil, forest, in the Rekapali subdivision.

14. This is the only important town in the district, from its bazars, pukka buildings, and group of temples, the last held in so much veneration by Hindoos of all classes. An annual fair takes place about the month of March, the date being fixed according to the Hindoo calendar or change of

Badrachelam.

the modn, in honour of Sri Ramulu, the god to whom the temples are dedicated, over which the poojaries, priests, and their dependants hold great sway. The population of Badrachelam, derived from actual census, is 1,585 souls. During the *jathra* the place is thronged by thousands from the adjacent talooqs, Nizam's dominions and Rajamandry districts. It is situated in latitude $17^{\circ} 39' 56''$, longitude $80^{\circ} 55' 40''$, on the Godavery river. The forest and hilly tract of this talooq is almost entirely inhabited by the Kois, a tribe resembling the Gonds. The more open and cultivated portions are occupied by those of the Telegu caste, as in the Rekapali Division.

15. In this sub-division the country is flat and covered with jungle, relieved here and there by detached hills. That close to the Badrachelam temples, as determined by you, is 404 feet above the sea level; the surrounding ones are a few hundred feet higher. There are ten ordinary-sized tanks, and a great number broken and neglected. The soil is inferior, and cultivation in exceedingly small patches. The country is susceptible of great improvement hereafter by canal irrigation, in connection with the public works on the first barrier, and the ground in every way is well suited, the levels being in favour of it, up to the valley of the Sevri. Owing to the earthworks and embankments thrown up by the public works at the Godavery canal and tramway, there are two large swamps formed near the canal, and a very extensive one or [?] the latter containing an immense volume of water considered more or less poisonous. These three are situated between Badrachelam and the village of Sitampet.

16. The following is extracted from Mr. Temple's* report of these districts in 1863 regarding the estates of the Rani the year the country was ceded to the British Government, and a description of the gorge and Godavery delta:—

*Chief Commissioner of the Central Provinces.

“The land belongs to the family of the Ashwa Rao Rajas, who hold large estates in the Nizam's dominions. First the estates on both sides the river suffered from feuds between two branches of the family; then the present holders (now represented by a Rani) fell deeply into debt with bankers at Hyderabad; then mortgages and the disputes consequent thereon followed * * * in the Rekapilly sub-division subordinate to Budrachelam. The Rani has managers, some of them possessing a quasi-hereditary status; of these the principal is a man whose former career has been marked by treachery and murder, another was quite recently removed from his position for having been the author and promoter of a serious gang robbery.”

17. “It was ceded to the British Government by the Nizam in virtue of certain territorial arrangements made in 1860. Since the beginning of 1861 it has been under British rule.”

18. “At a few miles below the junction of the Sibbree the hills cluster more and more thick around the Godavery, till the spurs of the Eastern Ghauts close the river in, and at length the mouth of the great gorge is reached. It is here that the river cuts through the very highest part of the range and is narrowed between the hills rising straight from the water's edge to a height on either side of 2,000 to 2,500 feet. At the head of the gorge the extreme limit of the Central Provinces is reached. * * * Above the hills its breadth is in some places about two miles, and between them about two hundred yards. In the latter section the depth is very great. Below the hills the river spreads out into a wide sheet of water in the rainy season, and of sand in other seasons, for a distance of 28 miles, to Rajamandry, and after that the delta commences. From the lower or eastern face of the Ghauts to the sea coast there is a broad tract highly cultivated, thickly populated, well irrigated, and abounding in water carriage. That district belongs to the Madras Presidency, and is the great source of supply in every way to the Upper Godavery country.”

19. Dumagudium is the head-quarters of the Godavery Navigation Department, and is situated conveniently on the works now in progress at the first “barrier.” Though the locality is an unhealthy one in appearance, from its being low and its proximity to the jungles, it has been improved greatly since first occupied, by drainage and clearance of the underwood. No opinion can be formed as to the probable date for the completion

Dumagudium and the first barrier against the navigation of the Godavery river.

of the canal, &c., and those who are capable of expressing any entertain considerable doubts as to the navigation of the Godavery over the three barriers being of practical utility or advantage before the end of the present century. The canal now in progress to avoid the first barrier of rocks and low water commences from a point in the river a little above Dumagudium, and enters into the Godavery at the village of Soraram, a distance of 22 miles in length. A steamer plies up and down the river from Rajamandry to Galagudium, conveying grain and stores for the Godavery works, which from the latter village are transported to Dumagudium by tramway, passing by the villages Chinampet, Sitampet, Turpaka, Narsapur, Narikur and Gangol, a distance of 18 miles. In the event, therefore, of the site for a sanitarium described in para. 10 of this report being chosen, those visiting the hills from the Rajamandry side will have all the advantages and facility at their disposal by the river steamers up to a point at the village of Wodogarium, from whence a good road through Rekapali might be constructed to the foot of the hills.

20. The three sub-divisions partake of the same character in the general features of the country; and, as given in the statement under **Talooqs of Cherla, Albaka and Nugur.** para. 8, the area of each, it will be perceived, is small.

21. The village of Cherla is situated in lat. $18^{\circ} 5' 5''$, long. $80^{\circ} 52' 10''$. From the banks of the Godavery and its tributary (the Talperu) it is [distant] 2.5 and 1.8 miles respectively, and contains a population of 250 souls.

22. Albaka is in lat. $18^{\circ} 17' 40''$ and long. $80^{\circ} 42' 41''$, situated 0.5 miles in a northerly direction from the Godavery bank. Its population numbers 235 souls.

23. The Nugur talooq is larger than Cherla, and considerably so than that of Albaka. The village of Nugur, in lat. $18^{\circ} 20' 22''$, long. $80^{\circ} 35' 44''$ (213 souls), is immediately below the smaller range of hills on which two secondary stations of Bijnapali (H.S.) and Raspali (H.S.) are situated, determined by me during the season 1863-64.

24. [Owing to] the great similarity in the characteristic features of the hill ranges, drainage, &c., and the conditions with regard to the landed tenures before the strip was ceded to the British Government by the Nizam, I purpose here to class and describe them together. They are bounded on the western and northern faces by the talooqs of Bapalpatnum, Vijapur, Kotapali and Biji of the Bustar dependency, on the east by Badrachelam and on the south by the Godavery river.

25. Excepting on the banks of the Godavery this strip is but poorly cultivated, the produce being chiefly of jowari, rice, and pulses of the coarsest description.

26. The lower range of hills above Nugur extend through the three talooqs almost down to Cherla, and are elevated about 2,000 feet; from their summits they stretch out into a slightly undulating plateau, over which the upper or rocky mountains stand, and bound the northern face of the Nugur talooq and a portion of Albaka. They average in height from 3,000 to 4,000 feet, nearly, above the level of the sea. Both ranges are composed of red sandstone, and the whole length facing the riverside is frightfully scarped, whereas the summits of the high ridge and northern faces are cut up throughout by fissures and exceedingly deep chasms, so that the hope expressed by some of the officers employed on the Godavery works of a possibility of a sanitarium being found is impracticable.

27. The Talperu runs through the Cherla sub-division for 14 miles, and falls into the Godavery, draining portions of the northern section of the talooq. It rises in the Bustar dependency on the Bela Dila hills, and is supposed to be about 100 miles in length. The country about Albaka and Nugur is drained by some of the large watercourses which emanate from the rocky mountains; one or two of these contain water throughout the year.

28. In the Cherla talooq there are 7 tanks, in Albaka 2, and Nugur 3. Besides these there are a number of neglected ones, so much so that their existence is known or traced only by the broken bunds, now quite overgrown by jungle. Irrigation is still, consequently, not carried to any great extent, but eventually there is a hope of the people exerting themselves when they begin to appreciate the British rule and forget their former oppressors. The soil on the bank of the Godavery is nearly of the same description as that

previously described ; that on the plateaus seems of a black kind, still entirely occupied by thick forest, and deserted almost wholly by man.

29. The country is not considered salubrious, though for two seasons our survey parties who were employed upon the Nugur and Albaka talooqs escaped malarious fevers. Epidemics, such as small-pox and dysentery (Mr. Scanlan informs me), have been sweeping some of the villages this year of the inhabitants—the fact being strange that the children are generally free from the attacks of the epidemics, but the adults seem to be the special victims. The diseases are described to be of a most virulent type.

30. No made roads exist in the Upper Godavery districts, and with the exception of a cart tract from Badrachelam to Dumagudium the rest are all footpaths. There is postal communication from Sironcha to Dumagudium and Ellora in the Madras Presidency, considered at present as the district dāk. Telegraph communication has been established between Sironcha and Dumagudium, and its extension to Daoleshwaram appears to be contemplated.

31. Iron ore is found in great quantities in several parts of the district. It is worked to a great extent on the Jeypore bank of the Sevri. I have not seen any new smelting furnaces on the British side, but came across some old ones on a little hillock close to the village of Kumur. In native surveyor Janardanrao's board I was delayed for several hours, and was surprised at the extraordinary variation of my compass. The needle pointed due east, and feeling curious at this I consequently made particular inquiries and carefully examined the whole surface of the little knoll, but found no indications of the existence of iron. The morning was inclined to be rainy, and thick heavy clouds hung towards the east, surcharged with electricity. Attributing the variation of the needle to it, I left the hill determining to return during the day. At 1½ P.M. I revisited the spot, and still found the same variation as in the morning, and at this time of the day the sky was observed to be perfectly clear. I met Janardanrao, native surveyor, subsequently, who informed me that he observed the same difference in his compass at this little hill. I mention the above circumstances from the fact of such a vast variation in the needle never having been remarked by me before.

32. Mr. Scanlan informs me that in some spots in the vicinity of the Talperu river coal is said to exist. This information was got from Mr. Vanstavern, one of the engineers of the Godavery navigation works, but further than indication of the existence of coal by scraps or bands of shale being discovered I can give no further information on this subject.

33. Throughout the Upper Godavery district the Telegu is the universal language, though the several sub-divisions of the aboriginal Gond tribes have dialects of their own. These sub-divisions number six, and are known as the Khonds, Koiwars, Gotivars, Reddies, Marias and Naikra-Gonds. Their five principal deities are Dharmarazu, Bhimudu, Arjuna, Nakula, and Shahadera, sons of the great Pandu, and are denominated Pandavas. The first three are the offspring of Pandu's first love, the last two of his second. Their two principal village tutelary deities are Potraju and Mutialama ; some minor ones are also held in veneration, who are their accepted Penates. But the two mentioned above are invoked by their votaries on every occasion, and every trifling circumstance demands a sacrifice or some offering.

34. Since the expulsion of the Cherla Rajah crime has so wonderfully decreased that the word itself may be said to have become obsolete in proportion as the freebooters have suffered the penalty of the law.

35. The following para. occurs in the Chief Commissioner's report describing the former troubles of the country :—“ One cause of the deterioration of the tract has been its unfortunate situation under the Nizam's Government before the cession. It was separated from the Deccan by the river, and being the only tract belonging to the Nizam across the river, and being the extreme outlying portion, it was much neglected, the proprietorship and management of the land belonging to petty chiefs who resided on the opposite or Deccan side of the river, and who never resorted to the trans-Godavery tract except when they had to take refuge there by reason of any trouble in their own country. The petty chiefs, too, of the

neighbouring Bustar State, subordinate to Nagpore, were more lawless formerly than they are now. Plunderings of a character to depopulate a country already thinly populated occurred up to a recent period, immediately before the introduction of British rule. I may mention a few instances. In May 1860 the Bopulpotnum chief attacked the Nuggur sub-division and plundered six villages. Early in the same year one of the chiefs under Bustar robbed a caravan of traders and carried off 2,500 rupees' worth of property. In the same year the people of the Cherla and Buddrachellam sub-divisions went on for some time plundering each other's villages. In 1859 the Cherla chief plundered two villages in the Bustar country, whereon the Bustar people retaliated by plundering six villages in the Nuggur sub-division. In the same year a party from the Bustar country entered the Buddrachellam sub-division and forcibly drove off all the cattle. Again, the Cherla chief attacked a village near Dumagudium, tortured the headman and took off 2,000 rupees' worth of jewels. These instances might be multiplied, but enough has been said to show the lawless character of the country. These troubles have of course ceased since the introduction of British rule in 1861."

36. I had reason to be dissatisfied with native surveyor Ramchunder during the early course of the survey, owing to his omitting to submit regular reports of his progress, but subsequently found that it was not the result of neglect. The extent of his work has exceeded far more than what was allotted to him, on [? as] the boundary of the Nuggur talook extended further into his board than was originally supposed. On the northern frontier of this sub-division he was unable to survey the slip into the Bustar country, from the difficult nature of the ground, but as this portion of the boundary is so prominently defined by the rocky range, on which there are, besides, a number of Trigonometrical stations through the whole length, there can be no difficulty hereafter in combining the details with the survey of the Bustar States. The rest of the assistants I have much pleasure in bringing to your notice as having given every satisfaction in performing their several duties. I trust I might be here allowed to mention that Mr. Ogle expressed his great disappointment to me relative to his promotion, which he fully anticipated from the kind manner in which you recommended him last year. At his request I lately gave cover and forwarded a letter he addressed you on this subject.

37. Before concluding this report, I beg to enter into the following explanation regarding the orders I received from you (dated Akola, Berar, 15th February 1866) to extend the triangulation of these districts with a view to form a connection with two or more stations of the coast series G. T. Survey. I have already submitted two official letters, of dates 27th February and 3rd March 1866, accompanied by the opinion of the medical officer stationed at Dumagudium, who considered it imprudent to attempt a survey in the state he found my party at such an advanced stage of the season through the malarious tract between the Sevri river and Rajamandry. Setting aside my inability, from ill health, to attempt the triangulation, my experience of the country satisfies me that any attempt so late in the season must necessarily have been attended with risk and failure, as the instruments not being at hand the triangulation could not have been commenced upon before some time after the first week in April. For my own sake I regret exceedingly that I was unequal to make even a trial, and if the season was not so far advanced I might have waited till I was able to undertake the same. All the assistants except Ramchunder, native surveyor, having completed work, I collected the parties who were employed in the neighbourhood of Dumagudium and marched to Nagaram, where I was obliged to halt till the 19th March for native surveyor Ramchunder and the assistants I had sent out to inspect his work. The tindal with the instruments reached me *en route* to this place. On its arrival I examined the same and found everything correct. After dusting the several boxes, &c., I took charge of the instruments forwarded by Bikari, tindal.

I have, &c., &c.,

A. CHAMARETT,

Civil Assistant, No. 2 Topographical Party, Hyderabad.

MEMOIR OF THE RAICHOOR CIRCAR.

CAPITALS, FORTS, MARKET-PLACES, &c.

Cusba Allumpoor stands in latitude $15^{\circ} 52' 30''$, long. $78^{\circ} 11' 30''$, and is about 6 miles N. E. of Kurnool. It is situated on the left bank of the In the Pergunna of Allumpoor. Toongabhadra river. It comprehends both a fort and petta. The fort is nearly quadrangular in figure, its longest diameter is about $2\frac{1}{2}$ furlongs, and one of the longest faces is washed by the river; its profile is lofty but weak, and has a shallow dry ditch, which on account of the rocky nature of the soil is not everywhere continued; the materials of the walls are rough stones, which about the gateways and some of the bastions are well cemented, but in general they are but loosely connected and the works are in many places going to decay; within is a high cavalier commanding most parts of the interior. The fort has two gates, one towards the river and one on the opposite face. It is filled with houses formed into streets irregularly disposed; the houses are occupied by the garrison, the Amildar and Cutcherri servants, and by some Brahmin and other families of long residence in the place. The petta is situated chiefly to the N.E. of and with but a very small interval between it and the fort; it is imperfectly enclosed by a small wall possessing no military character whatever; it comprehends a rather large bazaar. Several soucars of eminence reside at this place or have agents here, it being a staple for the trade between Hyderabad and the Kurnool and Cuddapa districts, also for the trade to Wallajapett; a great quantity of cloths of various kinds, and even some silks, are made at this place. Several Patan families of rank, driven by political circumstances from Kurnool, reside here, some in houses of a comparatively superior kind.

A jahtra or annual festival of the pagoda is held here about a month after the summer solstice.

Pangtoor comprises a fort and petta, and belongs as a jaghire to Edooroos Khan, who resides in the fort; it stands in lat. $16^{\circ} 1' 24''$ and long. $78^{\circ} 7' 5''$, as determined in the Grand Trigonometrical Survey, and is about 13 miles north of Kurnool. The fort is nearly a parallelogram near 2 furlongs by 1-14; one of its largest faces, which is a little incurvated, is washed by the Kistna river; it has but one gate, which is in the side towards the petta. Its walls seem strongly built of stone and appear to be in very good order; it has more than a due number of semicircular towers, and some of these appear spacious; the ditch seems to be of but little character.

The petta is also situated upon the bank of the river, a little distance from the N.W. face of the fort. It is imperfectly surrounded with a high wall of loose stones except on the side towards the fort. The inhabitants are chiefly the sepoys of the garrison and their families, and the dependants of the more respectable families. There is also a bazaar, chiefly for the supply of the garrison. The lands of this jaghire are only about 3 square miles in extent; of course its revenue is of quite unimportant amount. The troops maintained by Edooroos Khan are paid for by the Nizam's Government, so that it is from his situation as killedar and commandant of a corps that Edooroos Khan derives his rank and emoluments; parties of his corps are detached in different places, wherever they may be ordered by the Sircar. The Raichoor zemindar, for instance, is entitled to a quota of the Sircar's troops, and these are furnished from Pangtoor and occupy different posts in the zemindari.

Korripad comprehends a gurhee and petta; the gurhee is small, but the walls are high and appear in good order. The petta, though much less than, is next in consideration to, Allumpoor. No soucars reside here, but there are several respectable beopars and a tolerably good bazaar. None of the other villages of Allumpoor Pergunna are of character to require particular notice. The map affords a scale of their comparative size.

There is a total of 12 garrisoned posts in these districts, which are thus situated :—on the Kistna 2, Nizamconda and Goorungudda ; on the Toongabhudra 3, Muddoor, Rajawoloo, and Soampoor ; upon eastern frontier 2, Borewelli and Jeej Umrawaee ; on the western frontier 2, Ghutt and Boellugoodum ; and in the interior 3, Guduwall, Durroor and Nagurdodi. Of these 12 places Guduwall is undoubtedly the strongest.

Guduwall Districts
comprising the Per-
gunnas of Jeej and
Durroor.

Guduwall.—This is the capital of the districts belonging to the Guduwall Raja ; it stands in lat. $16^{\circ} 14' 15''$ and in long. $77^{\circ} 51' 38''$; it is nearly in a right line between Raichoor and Pangool, about 30 miles from the former and 22 from the latter ; also in a line between Kurnool and Narainpetta, about 34 miles from the former and 42 from the latter. It consists of a fort, and an exterior petta which may properly be considered as the town of Guduwall ; it is surrounded by a dry thorn hedge only. The fort is situated within the petta, a small open space or esplanade intervening between the houses and glacis. The fort is of an oblong and nearly quadrilateral figure, in its greatest length (which is from east to west) about four or five hundred yards ; adjoining it on the east is a nearly circular and lofty citadel strongly built of mud. The fort is faced with massy but roughly hewn stones laid with and without cement ; it appears to have a tasse-braye, is surrounded by a ditch, occasionally wet but generally dry, and of no great depth or breadth. There is a short steep glacis, under which there is most probably good cover. The citadel is without ditch or glacis, and has but one gate, which communicates with the fort. The fort is closely occupied with houses except immediately about the citadel, where there is a small open space ; the main street leads in the longest direction of the fort from the citadel to the western gate. There is also a gate on the north, another on the south face of the fort. The pagoda, the Raja's residence, and the offices appertaining to them crowd the citadel with buildings. It may be four or five hundred yards in circumference. The number of towers or mud bastions are said to be 22 ; they are situated very close to each other, and some are provided with a swivel or other small piece of mounted ordnance. The present state of both fort and citadel is but indifferent as to repair, but it cannot be said to be anywhere in a ruinous state.

Many opulent soucars residing in different parts of the Mahratta and Nizam's dominions have agents at this place, and some soucars reside here in person. The Raja being resident at this place, and drawing to it a large concourse of people, sufficiently encourages the internal trade of the place, but there are considerable manufactures affording a scope to exterior commerce. These manufactures consist of coarse and fine cloths, muslins, rich stuffs composed of silk, cotton, and gold thread, gold and silk embroidering, dyeing silk and cotton cloths and thread. The town is populous and seems in a flourishing state. There is an annual festival at the pagoda about a month before the vernal equinox ; for sale at this period a large store of articles, the manufacture of Guduwall as well as of the country in general, are laid up.

Nizamconda seems to be next in estimation to Guduwall as a fortress ; it is an island in a deep part of the Kistna river consisting of one abrupt rocky height ; it stands in latitude $16^{\circ} 9' 28''$ and longitude $77^{\circ} 59' 57''$, and is about 11 miles S.E. of Guduwall. The works consist of an upper fort crowning the hill, and of a lower fort of three faces built along the edge of the island and along the foot of the hill on its southern and eastern sides ; there is but one entrance, which is on the south side. The upper fort is narrow, of an oblong shape and of small area : on it is a rather large gun, on the highest point of the hill ; the lower fort is also small but has many bastions, each of which has a swivel ; the works are high and seem of thick profile ; they are faced with rough-hewn stones.

It is generally occupied only by a guard, the usual residence of the garrison being at *Condapet*, a bazaar dependency of the fort, situated on the right bank of the river immediately opposite the island.

Durroor is the capital of the pergunna of the same name ; it stands nearly in lat. $16^{\circ} 14' 20''$ and long. $77^{\circ} 45' 20''$, and is about 7 miles west of Guduwall.

The fort of Durroor is somewhat of an octangular figure, and may be about 6 furlongs in circumference; it has a short steep glacis and a small ditch which during some months is wet; the walls, from their foundation nearly as high as covered by the glacis, are faced with large rough-hewn stones; the parapets and some further portion of the walls are but of mud, they seem of weak profile and are in a miserable condition as to repair. The fort appears on the whole of but contemptible military strength. The gate is on the north side, and the village is chiefly within the fort, but has a portion without, close under the glacis in the east side. It is situated in the midst of a perfectly open plain, there being neither jungle nor height within 12 or 13 furlongs on either side of it; to the S.E. is a tank, the water of which in the wet season extends so as to cover that face of the fort.

The exterior village is very small, and the number of houses within the fort not very great; no bazaar.

Borewelli is about $5\frac{1}{2}$ miles west and some little north of Pangtoor; it is considered a frontier post (being not more than half a mile from the Allumpoor boundary), and as such is generally proportionally well garrisoned, and is said to have in some degree successfully resisted a slight siege undertaken by the Nizam's troops two or three years ago. It consists of an outer and inner fort; the outer fort is divided into two parts by a wall; in the western part is the petta; in the eastern is the inner fort, which is also divided into two parts lying north and south of each other. These works stand in an open and nearly level country; they are built of earth, faced with blocks of roughly hewn stones, and have the appearance of some strength as to Indian warfare; the figure of both forts is oblong and nearly quadrangular; the outer is about three furlongs in its longest direction, which is east and west; in breadth it is between 300 and 400 yards, and something greater than the length of the inner fort; there is but one exterior gate, which leads into the petta and is in the south side. There are many bastions or round towers, each of which is provided with a swivel. A dry ditch surrounds the whole; it is cut chiefly through slate rock of nearly perpendicular steepness, of no great breadth, and about 12 or 15 feet deep.

Gutt, so called from being situated in a rock, stands in lat. $16^{\circ} 7' 15''$ and long. $77^{\circ} 37' 47''$; it is 17 miles S.W. from Guduwall and about 16 miles E. by S. from Raichoor; it is situated near the gorge of a crescent of jungly heights which have their course some distance to the north and terminate towards their gorge in easy and open swells, on a rocky eminence of one of which Gutt is situated. It consists of an upper and lower fort or petta, and an exterior petta; the upper fort is built along the crown of a small and very rocky height of an elevation of perhaps 40 or 50 yards, with several massy fragments of rock considerably elevated above the general tops of the height; two of these are provided each with an insulated and well-built tower of comparatively difficult access. The lower fort stands on the south-eastern side of the height and along its foot, covering the access to the upper fort on the north and east sides, where it is otherwise perfectly easy, but exceedingly rugged and steep on the other sides. On the north-western side there is a tank and some wet cultivation, but to the north and north-east are other rocky and unoccupied heights very near to the fortified one, and of these one distant but three or four furlongs on the north-east is nearly equal in height, affords complete shelter and an excellent platform top. The walls of the fort are high, the lower parts are built or faced with large rough-hewn stones, the upper portion of mud and round stones or of mud only. Some seem tolerably well built, but on the whole the work is of but little military character. The gate is on the north return of the lower fort. A few small pieces of badly mounted ordnance are on the works. The outer petta is but small and very irregularly built, extending along the face of the lower fort and between it and the height before mentioned, one side of which is occupied by the houses, which are built over a rocky and uneven surface.

This place is sometimes called Suntu Gutt, or simply Suntu, *i. e.*, the bazaar, being the largest market between Guduwall and Raichoor. Besides an ordinary bazaar and a weekly market, this place has some degree of notoriety in being the

residence of some Lingait merchants who are their own carriers and import* from the western districts supari, pepper, cardamoms and other garden productions ; these they dispose of at the Guduwall fair, or, if it promises better to their interests, at Hyderabad or the intervening country. Coarse cloths and cumblies are also articles of commerce at this place.

Muddoor is situated about latitude $15^{\circ} 55' 10''$ and longitude $77^{\circ} 56'$, about 23 miles S. by E. of Guduwall, and 12 W. by N. from Kurnool. It is situated a few yards from the left bank of the Toongabhudra river. It is nearly a square fort of something less than 100 yards each face, having the S.E. angle cut off by a re-entering right angle in which the gate is situated ; the walls are of earth faced with large rough-hewn stone, and except at the gate it is surrounded by a dry ditch of moderate breadth and depth ; it has no exterior glacis, but has a thick embankment forming a sort of tasse-braye sloping from the inner ditch to the parapet ; it is situated in an open and nearly level country 200 or 300 yards from the left bank of the Toongabhudra. The village is on the east side of the fort ; a few houses are in the fort.

Rajawoloo is a double fort, situated close on the left bank of the Toongabhudra. It stands in lat. $15^{\circ} 52' 58''$, long. $77^{\circ} 52' 11''$; it is near 24 miles south (a little east) of Guduwall, and about 15 miles west (a little north) of Kurnool. The inner fort is surrounded except on the side of the river by the outer fort, which has a petta: the inner fort appears of a square figure, each face of which may be about 50 or 60 yards ; it seems well built. The exterior fort is about a furlong in length, and is faced with rough-hewn stone ; there is a large village on the northern face ; the entrance to the outer fort is on the west side, but probably there is a gate on the northern face also.

Rajawoloo is a trading town of the second class in comparison of Guduwall ; a few petty soucars reside here and partake in the trade between these parts, as well as Adoni, Gooty and Bellary, with Hyderabad. Coarse cloths are also manufactured and cotton thread dyed.

Borlugoodum stands in lat. $16^{\circ} 0' 10''$ and long. $77^{\circ} 36' 10''$, and is about 18 miles S.E. from Raichoor. It is very near the boundary common to Guduwall and Raichoor. It consists of an upper and lower fort. The upper is situated upon a small rocky height ; it is about 100 feet square and encloses a pagoda. The lower fort is also small, not exceeding 200 yards in its longest face, which passes along the north foot of the height, towards which it has two short return ends. The upper fort is entirely faced with stone, as is the bottom of the lower fort, but the upper part of its walls are of mud.

Soampooram and Nagurdodi.—The former is situated on the left bank of the Toongabhudra, and is about $5\frac{1}{2}$ miles W. of Naguldiinni. Nagurdodi stands about 14 miles S.E. by E. from Guduwall, and about midway between Raichoor and Kurnool. They are small, not being more than a hundred yards square ; they seem strongly built and are faced with stone. Nagurdodi may be some little larger than Soampooram, and has a small wet ditch with a covert way and a detached tower at each angle of the ditch.

Goorungudday is a small and insignificant post situated upon a low height near the centre of an island in the Kistna river, which in the dry season is fordable in this part ; it is about 8 miles E. by S. of Guduwall.

Jej Umrawaee is a small mud gurbhee of an ordinary kind ; it stands on the eastern frontier of Guduwall district, and is near 12 miles N.W. of Kurnool.

The 12 military places are occupied by garrisons of peons, chiefly Beyders, armed with matchlocks and swords ; these men have generally lands for their military services, and have over them a Kiltedar or Naique, according to the degree of importance of the post. None of these places can be considered strong as to the European mode of attack, but the best of them are of competent strength against native attacks. Some of these places are in very bad repair ; even the larger kind are but indifferent in this respect. The masonry, generally speaking, is tolerably good, but the ramparts, parapets and such of the upper works as are built of mud or earth are in a very neglected state. The ordnance which these works possess is of small calibre, very badly mounted, and but few in number. Borewelli seems the principal post on the eastern, and Gutt on the western frontier.

Anantapoor is about 6 miles south-east of Guduwall ; it has been very lately erected, and under the indulgences (cow) afforded it is in a flourishing state (as a trading town of second class compared with Guduwall). It is conveniently situated with respect to the trade between Adoni district and Hyderabad ; it has a weekly market, to which is brought all the coarser productions of the surrounding country that do not find vent at Guduwall ; coarse cumblies and coarse cloths for instance, also thread, and grain of different descriptions. These are bought for the most part by petty soucars, who export them to the adjoining districts north of the Kistna.

Jeej is the kusba of the pergunna of the same name ; it stands in lat. about $16^{\circ} 0' 40''$ and long. $77^{\circ} 44' 40''$; it is near 18 miles S.W. by S. of Guduwall ; it has no garrisoned post, but is a trading town of similar extent and character to Rajawoloo, already described.

Cotupolliam.—The Polliam of Cotupolliam comprehends the town of Cotupolliam and three small villages its dependencies. The town of Cotupolliam stands amongst a wild of jungle and small craggy heights, a kind of scenery congenial to the taste of a Poligar. Walls have been raised between these heights in a manner so as to make a rather large but not very defensible enclosure ; the principal military works are two towers, and upon each of the two heights most difficult of access ; below there is also a small fort with two lofty towers at different angles. These works were laid nearly in ruins a few years ago, and have not since been efficiently repaired.

Raichoor stands in lat. $16^{\circ} 12' 2''$ and long. $77^{\circ} 24' 37''$. It consists of one town, and is situated at the northern extremity of a remarkable cluster of insulated mountains. The fortress is of a very irregular but not uncompact figure, and may comprehend a total area of more than half a square mile ; it encloses a small rock which is well fortified and surmounted with a neat pleasure building ; from the rock a line of works takes a sweep to the north and east ; beyond this and at a convenient interval there is another line forming the exterior work, and meeting the last only near the gateway to this exterior line ; there is a tasse-braye, and beyond it a wide ditch deep and wet in some parts, but dry and very shallow in others, where the soil proved too rocky. The materials of which the fort is built are not uniform ; some of the towers are built of excellent masonry, the stones being large, well fitted to each other and firmly cemented, but other parts seemed formed of small hewn stones but loosely put together ; these parts are probably the original works built by Raichea Gowda, a petty but powerful chieftain or Poligar, who had established himself in these parts. The superior masonry is supposed to be of much more modern origin, and to have been done by the Beejanuggur kings, and still later by Aurangzebe, who intended by degrees to have made the works of the same strength throughout ; this superior masonry extends over great part of the exterior line, which is therefore comparatively perfect, but is nevertheless faulty in many of the intervening spaces of the old works ; the interior works are reported to be in a very bad and ruinous condition. Such, however, as are upon the hill seem good. The fort is said to contain numerous buildings both of Hindu and Musalman origin—none, however, of a very remarkable or superior kind. The fort is inhabited by the descendants of ancient Brahmin and other families, and it was usually inhabited by a large garrison ; at present the number of family houses are reduced to a small proportion of what they formerly were, and scarcely any garrison is kept there, so that the place is becoming as much deserted as ruined. Indian history shows the importance in which this place was once held, but it is no longer held in any estimation, for besides the ruin in which it is allowed to fall, and the unprotected state in which it is left, it is also dismantled of all its ordnance, which have been taken from it and disposed into other forts. The petta stands on the east side of the fort ; it consists of one main street lying in an east and west direction and leading to the gate of the fort ; this street contains another large bazaar. A mass of houses extend irregularly half a mile towards the north of this street, and less than half that distance to the south ; within these spaces are numerous narrow and irregular alleys. Not one-half the houses are inhabited, and there are many comparatively open spaces, the houses having fallen down, and the earth of which they were composed carried to the saltpetre pans. The petta was once enclosed by a

wall, the remains of which are still visible in some parts, but no vestige of it left in others, although the old entrances continue to be adhered to, from revenue considerations, as the only proper ones into the town. Within the town there are no good private dwellings. There are a few of a rather large size, but they are of a dirty and mean appearance. Without the town, upon the low hills that are around it, there are numbers of religious Musalman buildings, as musjids and durgahs, principally the latter. There is also one large and not unhandsome musjid called Jumma Musjid, close to the main street of the town. Most of these are said to have been built in the time of Basalut Jung. There are one or two groves on the east side of the town, which with a few trees dispersed and intermixed with the buildings gives the eastern exterior of the town a cheerful, pleasant appearance. There is no want of water as to quantity, but it is thought to be of a hard, and therefore not good, quality; the tanks on the north and south sides of the fort are apt to become dry, the southern less so than the northern one.

Although the town of Raichoor will, from what has been said, be very justly considered as being in a very greatly declined state, it is still a very considerable place in comparison of other places in the district. Here are the skeletons (if they may be so called) of many ancient families whose existing members are dispersed in various parts of the country as writers and accountants of Brahmin families, traders of Lingaits, soldiers of Musalmans, and various other employments according to their caste, most of whom continue to regard this as their home. The district cutcherry though no longer held in the town is not so distant from it but that the latter may be visited at the same time with the former, so that the large portion of internal trade which occurs between the ryots and their fixed agents is still maintained at this place.

The cutcherry books still enumerate eight pettas belonging to Raichoor, though most of these being in the same street that number is but nominal; the liquor bazaar is the only one that seems entirely distinct: this is near the fort and at the southern extremity of the town. The trade is confined chiefly to the productions of the country, grain of different kinds, coarse cloths, cumblies, some of the garden productions from the banks of rivers, as *pan*, cocoanuts, jagry, most of which are intended for exportation beyond the Kistna. Some of the cotton and thread the produce of the district is bought by the traders of these places for exportation to Wallajahpett. These with the few other articles brought to meet the demands of the ryots, peons and other inhabitants of the district form the chief objects and sources of the commerce of this place.

Marchaid is something above six miles nearly N.W. from Raichoor; it is the residence of the Zemindar or renter of the Raichoor district, and comprehends a fort and petta. The fort is of somewhat circular shape, and between 200 and 300 yards in diameter. The Zemindar resides within the fort, which is crowded with buildings; its profile is high and thick, shows a deep trench for a ditch, and a high and steep glacis; it is capable of being swamped on all sides except the petta; the gate is of the usual complicated kind, and is on the eastern part of the fort. No labour has been spared to make the gurhee of the greatest possible strength; many pieces of ordnance (brought from Raichoor) are mounted on different towers. It might be found of considerable strength as to resisting small batteries, but it is so small and so choked with buildings that it would not be tenable against shells. The petta stands close on the east side of the fort and is quite open; it is inhabited chiefly by the military retainers of the Zemindar, of whom a body of from one to two thousand men are often present. The servants of the cutcherry also reside here; these together with a small bazaar establishment and a few cultivators form the whole population of the petta, the houses of which are small and confusedly placed. The Rajah is building a stone pagoda and a large Jungum Mutt near the bank of the large tank close south of the village, where also he has built a large and handsome stone well; near these he has another extensive garden and orchard well stocked with good mango, cocoanut and other trees. The garden is abundantly supplied with water from the tank, so that *pan*, vine and supari trees thrive very well.

• *Oopair* is the residence of a Musalman Jaghirdar possessing about four villages,

in its neighbourhood, of which two belonged formerly to Guduwall and the rest to Raichoor; this person, being of high connections at Hyderabad, declined permitting his limits to be surveyed without a particular order from the Government, before the arrival of which the establishment of the survey had become too remote.

Patupolliam, situated about 18 miles east by north of Raichoor; it is the residence of a petty Poligar possessing this and a small village its dependency; the adjoining petta is pretty populous, owing chiefly to the insecurity of the jungly tract in its neighbourhood from the contentions of this Poligar and his neighbour of Cotupolliam, the one being a partizan of Raichoor, the other of Guduwall, between which districts there is generally some feud.

Kadloor.—This place is situated on the right bank of the Kistna immediately below the junction of the Bheema, which junction is called, in reference to this village, the Kadloor Sungum; the village is 14 miles N. by W. from Raichoor. Here is an extensive entrenchment upon the bank of the river; it was projected by Mohub Jung with the view of maintaining his ground or securing a retreat under apprehension of the Seringapatam power, but dying before its completion it was discontinued. The village stands at the S. W. angle of the lines, and seems to have been intended as a sort of citadel to the other works.

Goboor is the kusba town of Moneer-ool-Moolk's jaghir, situated in the plain at the east foot of a rocky height; it is about 16 miles N. W. from Raichoor, and it stands in lat. $16^{\circ} 18' 30''$ and long. $77^{\circ} 12' 43''$. It is an ancient town, as is indicated by various ruins and fragments of buildings and inscriptions, many of the latter being worked up as materials for the walls. It is surrounded by a wall which appears to have been at one time strong but is now greatly dilapidated; to this exterior wall there are three gates; there are the ruins of an interior wall with four gates, but the houses being built contiguous it is lost among them. Here is a bazaar of five or six shops. There is a weekly market and annual jatra. A few beopars or second class merchants reside here, and buy up most of the cotton, wool and cotton thread of this and the neighbouring villages. There is also a small military force under a Jemadar stationed here.

Ramdroog stands in lat. $16^{\circ} 17' 30''$ and long. $77^{\circ} 7' 29''$, and is near 21 miles N. by W. of Raichoor. It lies between heights at the S. E. extremity of a small cluster of hills. It is the present kusba of the Beyrudona pergunna, but was originally one of the muzeras of the kusba of that name; the site of the old kusba is about 9 or 10 furlongs S. E. of Ramdroog and is entirely in ruins. A low wall of no military character encloses the town of Ramdroog in the N. E. ends, and towers are erected upon the small height on the S. E. and upon the hills on the N. W. side of the town. It has three gates, one on the S. W. and two on the N. E. face; the main street leading from the former branches off into the direction of the other gates. This place, though without any but the most indifferent military works, is considered a frontier post of the Shorapoor districts. There is consequently a large population of Beyder peons, paid chiefly by assignment of lands; these form the chief portion of the population of the place, but there are a few traders, some weavers, and a bazaar of four shops. There is a small but very conspicuous pagoda upon a hill about half a mile west of the town.

Hosopet is about 7 miles N. by W. from Raichoor, and but one mile from Marchaid, to which place it may be considered to appertain as a market; a few beopars reside here, who trade to the north side of the Kistna; there is a small bazaar, a weekly market and a small annual jatra.

Kulloor is situated about 11 miles S. W. from Raichoor at the foot of a small cluster of high hills. It stands very remote from any other village, and has therefore very extensive lands and a large population; it is estimated to contain upwards of 300 houses. It is enclosed by a wall in which there are 3 gates, one on each N. W. [?] and faces. The inhabitants are chiefly Lingaits and Beyders. Five or six beopars reside at this place; they trade chiefly in rice and cocoanuts from Serroogooopa, on the Toongabhadra, and molasses from the Ghooty districts; they dispose of their articles chiefly to Hosopet, above mentioned, whence they bring others the produce of the northern side of the Kistna.

Sirruwarram stands in lat. $16^{\circ} 10' 34''$ and long. $77^{\circ} 4' 46''$, and is about 22 miles west, some little south, of Raichoor. It is a walled town and petta situated at the east foot of an insulated rock of upwards of 100 yards elevation. Upon this height a droog has been constructed, but the works are now in quite a ruinous condition; a wall descends along the hill, and passing a short distance from the eastern foot of the rock forms a lower fort, close adjoining which on the east is the petta. But the ruinous state of the lower fort is such that the fort and petta are but imperfectly divided. About halfway up the hill on the eastern side is a pool of singularly fine water which never dries up nor corrupts. The town is enclosed by a wall which has two gates, one at each extremity of the main street passing in a north and south direction between the lower fort and petta. It is rather a populous place, but less so than formerly. The inhabitants are farmers, weavers, traders and peons; the weavers make coarse white cloths, also women's coloured cloths. There are but three shops in the bazaar, but there are several families of beopars who purchase cotton, wool and thread to a rather large extent, and carry it to Wallajapett, in return for which they bring chiefly specie. The buckals or shopkeepers trade to Sirugoopa and other places on the Toongabhudra, whence rice, cocoanuts and other garden articles are brought. They visit the annual fair at Humpi and bring thence iron, the production of the Mysore country; there is generally a small, and often a rather large, military party kept at this place to watch the poligars of Keadigerri and Arukeyl, who are very apt to encourage their retainers in predatory incursions into the Raichoor districts, on account of their claims to rissooms being unsatisfied. A number of Musalman families are found here. There is a well-built musjid and a small establishment for maintaining a Peer.

Buluganoor, about 11 miles S. by E. from Cavital and about 21 miles east of Moodgul, is a large village, and is the residence of several beopars or merchants of a secondary class; the chief trade is in cotton, wool and thread, which is sent to Wallajapett; there is also specially on the day of the weekly market much interchange of the other productions of the country between the people themselves, as well as with the buckals or shopkeepers, of which there are several.

Dewur Soogoor stands near the left bank of the Kistna river, and gives name to the principal military pass of the river; it is about 13 miles north, a little east, of Raichoor. The number of towers and the appearance of the gate indicate an intention to have made this a strong post; the works have been neglected and are falling to decay. Several beopars reside at this place, and there is also a small bazaar, and there is a small annual jattrā.

Marchairla, near 3 miles S.W. of Gutt, has a small gurhee, which, as well as an exterior petta, is occupied by the houses of husbandmen, weavers, and their servants.

Chenoor Bunda is about 7 miles E. by N. from Raichoor; it is a sort of double, or rather divided, gurhee, a wall passing through the middle, dividing it into two parts; the walls are rather lofty, but are now in a state of much ruin. The exterior gate on the east face is double, the outer one is strong and well built. This was once the residence of a Musalman Jaghirdar who built a bungalow and mahal, erected the already mentioned gateway, dug a well, laid canals and built cisterns for fountains, and laid out walks in a garden. At present this place has no particular character other than its being somewhat larger than the rest, and having a small bazaar kept by beopars, who purchase the productions of the country.

Yerruggerri stands on the great road between Adoni and Raichoor, near 10 miles S. by E. of the latter place. It consists of a gurhee close adjoining the road, and a petta on the east face; the gurhee has a population of about one-third the petta; the inhabitants are farmers and weavers chiefly, but also some few beopars, who deal principally in cloths, but also in ginger, *bych*, cocoanuts, *pan* and other articles produced at the gardens on the Toongabhudra.

Goonjipulli, 2 miles south; *Induwasi*, 8 miles east by south; *Edupuloor*, 6 miles S. E. of Yerruggerri, are the only other villages to the S. E. of Raichoor above the average size, and these have no character that need be particularly mentioned.

Gunnykul is about 16 miles W. by N. of Raichoor; it stands at the N. E. foot of a small conical height rendered very conspicuous by a lofty tower built

upon it: This town is the residence of the Nadu Gowda of the district; it is walled and has a small separate enclosure or fort within. The population are chiefly Beyder peons.

Neelgooloo is about 15 miles west of Raichoor, and is similar in nearly every particular to Gunneykul, above mentioned. It has three towers upon the height; the wall enclosing the town ascends this height and joins the towers.

Uttooor is about 2 miles S. W. of Neelgooloo, and, except that it is something less, is of the same description as Neelgooloo.

Nadugerry is about 20 miles W. by S. of Raichoor. The small rock on the west side of the village has a line of works with a few towers crowning the top; the wall enclosing the town terminates at the work on the top of the rock. These defences have not at present any sufficient military character to need particular mention. The village differs from the others only in being some little larger.

Beechal, situated on the left bank of the Toongabhadra river about $16\frac{1}{2}$ miles south, a little west, of Raichoor. Several beopars and petty traders reside at this place and carry on a rather brisk purchase and interchange of articles with Rampoor, situated on the opposite or right bank. Both Beechal and Rampoor have much wet and garden cultivation, and it is chiefly to the latter kind of productions that the trade of this place is confined: these articles are cocoanuts, *sopari*, ginger, *buch*, coriander seed, garlic, but especially *pan* or betel, of which a great quantity is constantly sent to Hyderabad.

At the weekly market held at this place there is generally a good show of cloth, cumblies and the various grains cultivated in the country. This market is generally attended by the beopars of Yerrugarri and other neighbouring villages.

Kooroodi, situated about 13 miles S.W. of Raichoor on the great road thence to the Ghauts and Bhunoor, was at one time a large place, but has now fallen into great decay; in the centre of the village stands upon a low hillock [*sic*], the wall surrounding it is in ruins; without these on the south and western sides are several small but pleasant graves, about which are to be seen the ruins of small pagodas and other buildings.

Goarukul, situated S. by W. 4 miles from Kooroodi, at the eastern foot of a high and singularly cragged and peaked rock, has been a place of some consideration, as indicated by the somewhat (in respect to other villages) superior character of its wall and towers. It is still larger than most of the villages near it, but is not otherwise deserving of notice.

Bhunoor stands in lat. $15^{\circ} 59' 20''$ and long. $77^{\circ} 6' 0''$, near 26 miles S.W. of Raichoor, and 5 miles N. W. of the left bank of the Toongabhadra. It is the capital of the pergunna of the same name; its ancient name, by which it is still very generally known was Manum. It is situated at the N. E. foot of a short but very high ridge of rocky hills. It is surrounded by a wall of nearly a quadrilateral figure and about two-thirds of a mile square; a space of nearly $2\frac{1}{2}$ furlongs by $3\frac{1}{2}$ furlongs at the S.W. angle is divided off the town, and formed into a separate fort having the eastern and western faces built up the side, upon the southern face along a low ridge of hills before mentioned; the fort is built of large blocks of unhewn stone, and appears of tolerably good profile, but the hill works are of an exceedingly defective plan, being completely commanded from the plain on the north; the walls are also falling to ruin. About 300 yards from the south face is a small redoubt crowning a low height; a wall directed first to the east and afterwards to the north connects it with the fort and covers the communication. The wall surrounding the town is high and has many towers, but it is of weak profile, and in an exceedingly indifferent state of repair; until lately the first was in possession of 12 hereditary naiques or captains of militia who held most of the lands of Bhunoor in Oomuli or other favourable Merassi tenure, but these people asserting an independence not admitted by the Government were ejected, and the zemindars' troops at present garrison the fort. The strength of the garrison is said to vary from one to five hundred men; the fort is further inhabited by Canarese Brahmins, by the naiques and their dependants not military men, and by the amildars and cutcherri establishment. Of Canarese Brahmins there are 20 or 30 houses; most of them have small

Merassi estates, and many of the families are maintained chiefly from two branches, who take service as writers, registrars or accountants at Hyderabad, Bellary, or wherever they can get employment. In the petta, also in the fort, are various traders, chiefly Lingaits, under the denomination of Chetties, Beopars, Buckals, &c., some of whom are agents for an eminent soukar at Coomooloor, opposite Chikkulburur. These people have a general dealing in all the productions of the country, but the most important portion of the trade is that to Wallajapett, consisting of cotton, wool and thread; on the return about three-fourths of the carriage being cocoanut, salt, jaggry, saffron, spice, &c. A number of Musalman families reside at this place, and are maintained chiefly by such members as are absent on service as peons or sepoy, but some subsist by weaving, and others by agriculture. There are many houses of weavers, and a few of dyers, distillers, Zengars and salt makers, besides those of the usual village trades. The Amildar at this place is appointed by the Zemindar, and does not appear of much respectability or authority. Bhunoor appears, from the fragments of some inscriptions which have been found there, to be a very ancient town; there are not, however, without the fort any buildings at all deserving of any notice.

Chikkulburur is situated on the left bank of the Tungabhadra and 6 miles south of Bhunoor, and is chiefly remarkable for standing at one of the chief ghauts at which the trade between the northern and southern countries crosses the river. Some of the agents of the soukar residing at Coomooloor live at this place, but it is falling very much into decay.

Kotumkulloo is about $6\frac{1}{2}$ miles west by south of Bhunoor; it is surrounded by a wall and is something larger than the neighbouring villages, but it is chiefly remarkable as being the place where Dhondia Vaughn was defeated by Colonel Wellesley in September 1800.

Cavital stands in lat. $16^{\circ} 6' 50''$, long. $76^{\circ} 31' 50''$, 37 [miles] W. by S. of Raichoor and 25 miles E. by N. of Moodgul; it is situated at the S.E. extremity of a tongue of heights, and consists of a fort and petta. The fort is of an irregular but somewhat octagonal shape, about 300 yards diameter from east to west and 200 from north to south. It is in a state of such great ruin as to need no other description of it; the houses within are mostly falling to ruin, but a few are still inhabited. The Amildar's residence and the cutcherry are within the fort; there is also a garrison of from 50 to 100 men under a Jemadar from the corps of Eduroos Khan at Pangtoor, but under the orders of the Amildar, and intended chiefly to enforce the payment of rent in the disturbed parts of the districts. A few Brahmin families reside in the fort. The petta is situated to the east of the fort, but in some measure extending along the north and south faces, with a small clear space intervening as a sort of esplanade. The petta is enclosed by a wall terminating on the faces of the fort, on each side of which there is a gate, also one on the north and east faces of the wall. There is a small bazaar at this place. The Buckals or shopkeepers trade chiefly to Kumpili and Serrugoopa, both on the right bank of the Tungabhadra, whence they bring rice, cocoanuts, jaggry, spices and curry stuff, also iron, but this article is obtained chiefly at the Humpee fair. There are also five beopars and a petty soukar who deal almost exclusively in cotton and thread, which they sell to other soukars or take it themselves to Wallajapett. A great number of Musalman families reside here. The place is in a state of great decay, as appears from the numerous ruined houses that are to be seen.

Umeengudda, 5 miles west of Cavital, and *Chenchurake*, near 10 miles north of Cavital, are each a small post garrisoned by matchlock-men to check the predatory conduct of the tenants of the mirasdar Neelkuntrow, to whom the villages properly belong. These places are of a square form, with towers at the angles and a high glacis covering the walls nearly to the top of the parapet. The works are of mud faced with unhewn stone, and surrounded by a dry ditch partly occupied by the houses of the peons.

Pamunkelloor is about 8 miles west (some little south) of Cavital; it is the kusba of the Dessye Jyapa's Oomuli. The Dessye's usual residence is at this place, though being Amildar (in consequence of an alliance by marriage with the Raichoor

Zemindar and not in relation to his office of Dessye) of the district he frequently resides at Cavital and Raichoor. The town is within a work between 200 and 300 yards square having a tower at each angle and in the centre of each face. It has a high glacis which ceasing within about 40 yards of the works leaves an intervening dry ditch which is partially occupied by huts; the entrance is on the east side and is defended by triple gates; the body of the materials is earth but faced with rough-hewn stone. There is a small exterior petta along the eastern and southern faces of the fort. This place has a weekly market.

Hurwapoor and *Toopudoos*, the former about 2, the latter near $2\frac{1}{2}$ miles south-westerly from Pamunkelloor, are distinguished as gurhees from the other villages by having each a glacis and small ditch, but are of unimportant character.

Gowdunubhawi, about 15 miles south, some little west, *Malapoor*, about 7 miles S.W. of Cavital, are small strong gurhees in the possession of the tenants of Neelkuntrow, who occupy them as garrisons.

Toorudinni, 5 miles S.W. of Cavital, is a place of the same description occupied by a garrison of the Dessye Jyapa's peons.

Oodubal, about 13 miles S.W. of Cavital, is a similar place garrisoned by the Raichoor Zemindar's peons.

Wuduwutti, about 9 miles N.E. of Cavital, and *Coorucoondi*, about $1\frac{1}{4}$ miles S.W. of Wuduwutti, situated the one at the north-eastern, the other at the south-western extremity of a ridge of rocky heights, are each enclosed by strong walls and contain about 300 houses; works are constructed upon the rocks commanding the towns and their environs. The former village belongs to the Dessye, the latter to the Nadu Gowda Neelkuntrow; on account of the quarrels between these Mirasdars and the Zemindars these villages have suffered much, and Coorucoondi is almost in ruins; the inhabitants of these places are chiefly Beyder peons, whose aptness for turbulent conduct makes them feel the evil less than most other descriptions of people.

Kussandodi... 3 miles W. of Wuduwutti,

Akulcoopu ... $2\frac{3}{4}$ " N. W. of do.,

Unnur 4 " N. by W. of do.,

Uddugullugoodla, $3\frac{3}{4}$ N. a little W. of do.,

} Are villages more or less fortified and situated upon low rocky heights; that of Kussandodi appears to have been the most considerable, but it is now falling into complete decay.

Gullug stands in lat. $16^{\circ} 15' 39''$ and long. $76^{\circ} 54'$, is 11 miles N. by E. of Cavital, and $8\frac{1}{2}$ S. by E. from Jalial. It is the residence of a petty Poligar, and situated at the east foot of several low rocky summits; that called Patu Gullug, or Old Gullug, is almost in complete ruins. The new town stands close north of the old one; it is enclosed by a strong wall on the N.E. and S. faces, and on the west it is sheltered by two rocky heights surmounted with towers. The town is large and populous, the inhabitants consisting chiefly of Beyder peons, adherents of the Poligar and his family; it contains 5 or 6 shops, and has a weekly market; some families of dyers, weavers, and distillers reside here.

Jalehal, stands in lat. $16^{\circ} 22' 36''$, long. $76^{\circ} 52' 58''$; it is 18 miles north of Cavital, 11 miles south by east of Shorapoor, and is about $3\frac{1}{2}$ miles south of the right bank of the Kistna. It is the capital or kusba of the pergunna of the same name. The town stands chiefly on the north foot of a small height upon which there was formerly a fort, but which has now fallen into complete ruin. A wall (now in very defective condition) surrounds the town. The remains of a ditch are recognized in some parts; but in most parts there are no remains of this part of the work. Jalial is the residence of the Amildar of the district, who, being a relation of the Shorapoor Raja, has a comparatively large retinue. These with cutcherry establishment, a few families of Brahmins, a few beopars and buckals, a number of weavers of coarse cloths, a few dyers, distillers, and a number of Beyder *anlenyarcant* farmers compose the population of this place.

Hoshulli, about $1\frac{3}{4}$ miles S. by W. of Jalial, is a small but strong gurhee, now building; the materials are chiefly of stone and chunam; it has a steep glacis and a

dry ditch. The object of this post is stated to be the security of the road upon which it is situated, and which is said to have been greatly infested by robbers after the decay of the villages of Bomunhally and Somunumurrudi. The jungle has already been burnt down to open the road, and the occupation of this post, it is supposed, will complete its security.

Boonkuldodi, a little more than 5 miles west of Jalia, and *Seddunakulloo*, near $1\frac{1}{2}$ miles west by south of Jalia, situated upon hills, were originally built by the rival brothers of the family of the then Jalia Poligar, and from the disturbance the district experienced from these people the fame of their villages is still remembered, though Seddunakulloo is almost deserted, and Bonkuldodi, which was much the largest place, is very considerably decayed; the ruins of boorjes or towers and numerous walls, particularly at Bonkuldodi, remain.

Deodroog stands in lat. $16^{\circ} 25' 4''$ and long. 77° , about 14 miles S. E. from Shorapoor and 32 N. W. from Raichoor; it is considered to stand on the boundary of the Chundunkaing, Moondurgi and Moosulukul divisions—the two former of Moodgul, the latter of Raichoor. It was the capital of the once powerful Poligar called after this place; it is enclosed by hills on all sides except the west. The town seems to have been enclosed by a line of works passing chiefly along the ridges of the heights, but having its course in the plain along the western face, where seems to have been a double wall with a slight outer ditch; the ruins of towers and small citadels are seen upon many of the summits of the hill, but the height called Heeranama Droog, close east of the town, was the principal post; it is very small and without any other supply of water than what may usually be caught in a small cistern; from the other sides being precipitous rock, it is accessible only on the north and N. E. faces, the works towards which were strong; from this place the whole town is completely commanded. Here are the remains of the Poligar's mahal and of a number of other houses. Immediately at the south foot of this hill is a small tank, the bank of which built across a narrow valley was to have formed a continuation of the works to the adjoining ridge, and for this purpose has been built broad with a ground-plan of intended towers; at present all the fortifications are either thrown down or are falling into complete ruins: they were destroyed so as to render them untenable when the place was taken by the Shorapoor Rajah about 10 years ago. The town consists of one main street lying nearly in an east and west direction; there are several smaller ones irregularly parallel and perpendicular to the main one. In the main street is a tolerably good bazaar, and good accommodation as to space for the purpose of a weekly market. The house which was the usual residence of the Poligar stands on the south side near the bottom of the street; it is a large building and with its enclosure is separate from the other houses; it is at present unoccupied, being too large to suit the limited means of the present representative of the family, who lives in a mean building near to it. The town has two dependencies—Gowrumapetta on the north, and Neejampetta on the south side of the ridge of hills east of the town. This town is the seat of the cutcherry and the usual residence of the Amildar of the Beyrudona and Masulukul pergunnas, also of the Moondurgi and Chundunkeyri summits of Moodgul. There are several families of respectable beopars who deal in cotton, thread and cloth; the two former they take to Wallajapett. The buckals trade to Seeragoopa and other places on the Tungabhadra for rice, coconuts and the various garden articles. A great number of dyers and weavers reside here; some of the latter are Musalman, of whom there are many families. There are some families of Brahmins, but Lingaits and Beyders form the bulk of the population; the former are traders, and the latter peons and cultivators.

Arukeyri (or the village of six streets), so called from the plan on which the houses are said to have been originally, is in lat. $16^{\circ} 16' 50''$ and in long. $77^{\circ} 1'$, is the residence of a Poligar, is situated upon the sides and about the top of a small cluster of low heights. The ruins of a short glacis and a ditch encompass the town, but there is not at present any perfect work about it; the works upon the heights are also in ruins. They consisted of four towers within the village and a small redoubt on the height close south of the village. The houses are built chiefly of rough granite, but are in a ruinous state; there are four or six shops. The inhabitants

are chiefly Beyders, for besides the immediate dependants of the Poligar there is a large body of militia peons; there are also many dyers and weavers.

Keedigerri, the residence of one of the Deodroog Poligars, is about 13 miles N.E. of Cavital; it consists of an upper and lower fort, the former built along the ridge of some low heights; the latter stands at the foot of the ridge close N.E. of the former, being connected with it by the S. W. angle; the works are kept in an entire state, and are of competent defence against loose attack; it is inhabited chiefly by Beyder peons who hold lands.

VILLAGES AND TOWNS.

In the succeeding pages will be found lists of the villages appertaining to each of the 9 pergumnas, "distinguishing into ruined and inhabited, principal and dependent." The classification has been made upon the best practicable authority, chiefly that of the cutcherry servants. It has not unfrequently happened that the same villages appeared in the lists of two different pergumnas, owing to some claims that each possess towards them; where those differences could be satisfactorily adjusted such has been done, otherwise they have been entered in both pergumnas with due notice annexed to each entry; the same has been done in cases where villages acknowledged to belong originally and properly to one district have, through jaghir tenures or other alienation become attached to another pergumna.

Anomalies of a similar kind occur, with regard to the interior classification of the villages of a district; some villages, for instance, of Jeej and Durroor belonging to the Guduwall Raja are given up in Tunkwah jaghir to the peons or militia. On such occasions Muzeras may become Mozas, and *vice versa*, according as a new proprietor is created, or an existing one enlarged. Formerly Durroor had 40 and 60 [?] principal villages, but at present 81 principal villages appertain to Jeej according to the list now given and corrected by the Raja himself.

Much attention has been given to the orthography of the names: written lists having first been procured, a person well acquainted with the names has been obtained from the cutcherry, and has been made to pronounce each syllable of every name in a distinct manner. When the ear did not satisfactorily recognize the sound reference has been made to alphabets in which opposite to each native character its correct sound was written. The system of orthography is that of Dr. Gilchrist, as near as recollection of it would allow; the only exceptions to the lists of villages being taken from the cutcherry are

1st, *Pergunnah of Durroor*, and 2nd, *Pergunna of Jeej*.—The Guduwall Raja, who is the proprietor of these talooks, was possessed of a particular prejudice against affording the required list, so much so that it would have been matter of offence to have urged the matter very far. He, however, afforded facilities towards obtaining the names, and undertook to dictate the necessary revisions when the lists obtained should be submitted to him, and this was done.

The Gullug Polliam.—The few villages of which this Polliam is comprised originally belonged to different pergumnas, and made it desirable to obtain from the Poligar himself some statement respecting them; his absence, however, during the time the survey was prosecuted in his neighbourhood prevented the list being obtained.

The positions of the villages have generally been obtained from stations taken in them; the bearing thence to the nearest visible trigonometrical points will be found inserted in the manner directed. One column has been left for the variation of compass, which is always easterly, but varies in degree with different needles; it has been thought better to insert this correction and leave the angles exactly as they appear in the Field Book, to prevent the errors that possibly might occur in the process of correction.

Where the villages are too near each other to afford any advantage from taking a station at each, some of them have been intersected from the nearest stations, as already mentioned in the introductory observation to the Memoir.

General Character of the Villages.—Almost all the villages show an original design of enclosure, the most simple form of which is the exterior houses being

built contiguous to each other or connected by a wall, and this is found in most villages of a small kind. Those of the next degree have a wall and rampart surrounding them; the terre-plain of the rampart is nearly on a level with, or is formed by, the terraces of the houses. These walls have circular towers, which, according to the size of the village or means of the inhabitants, are placed at one or all angles and upon the curtain. The towers are all of a circular form and of a somewhat conical elevation; they consist of a large chamber elevated from 10 to 30 feet above the level of the village, of an extent equal to the interior diameter of the tower. The entrance to these towers is by a ladder to a small door in their side. The height of the chamber is from 5 to 7 feet; in it are several rows of posts supporting a roof which forms an upper platform, the access to which is through a hatch in the roof; these platforms have generally a parapet from 3 to 6 feet high, furnished, like the walls of the chamber, with numerous loopholes commanding the foot of the tower as well as the distant field. Scarcely any village is without one of these towers placed nearly in its centre, others have them in addition at the angles, or even on the curtains of the works, as before mentioned; the state of this description of work is a pretty good index of that of the village: for under any encouragement or at all flourishing circumstances these defences are well attended to; in contrary circumstances they are neglected and fall into great ruin. The materials of which the walls are made is mostly mud, or mud and rough stones intermixed; the walls are often high but generally thin, leaving both the rampart and parapet very narrow. Some, however, are not deficient in profile (in particular the towers, which are generally strong), and have their lower parts defended by a glacis, generally short and steep, and which terminating some distance from the wall leaves a sort of ditch, which being sheltered and within the protection of the village, is generally occupied with houses.

All the houses are built of mud and are terraced; they are placed with little or no arrangement with respect to each other; they are of a low and mean appearance, and the villages generally very dirty. The gate of each village is generally formed with a lodge on each side; in these all the public business of the village is transacted, and they serve to accommodate travellers; their roofs form a terrace, which, protected by a breastwork, is intended as a place whence the entrance of the village may be defended; a platform with one or two trees is generally found just without the gateway of each village, but which can in no case be considered at all sheltered by wood; some villages are destitute of even a single tree.

RIVERS.

The breadth of the Doab being nowhere so much as 50 miles in Raichoor districts, and the nullahs having their rise near midway, none of them are large; most of them are without character as to supplying water or impediment to passing them; such as are in any measure of different description will be particularized. The two great rivers will be described, 1st, as to the places of passage or ghauts, the names of which are always those of the adjoining villages, and are therefore different on the opposite bank; thus the ghaut between Adoni and Hyderabad is called Madurum on the right bank, but Toongabhadra on the left bank. 2nd, the character of the passage. 3rd, the character of the river intermediate between the ghauts.

The two large rivers have been laid down by stations at all the villages on their banks, and by numerous stations upon their banks. All the islands that are visible above the flood are inserted except where they were too small and numerous, in which case such character is all that was thought necessary to describe.

In the following statement when two boats are said to appertain to the same ghaut, one is to be considered to belong to the nearest village on the left, the other to the nearest village on the right bank; when there is only one boat to a ford, in some cases it will belong to the right, and in others, to the left bank, according as custom or consent has established the property, which in every case is of sufficient consideration to be well defined and acknowledged. Although in the dry season an adherence to the established ghauts is not necessary to effect a

passage of the river, they still remain the only allowable passes, so that any merchandise found crossing at intermediate points is considered as intending to evade the customs waiters, and is seized accordingly. The remarks relative to the ferries apply only to the months of flood unless when otherwise mentioned; and in like manner the remarks relative to the fords apply only to the dry season.

Kistna River.

General Character.—It is of an average breadth of about 4 furlongs. Its banks are generally high and of a loose soil. Its bed is tolerably even; the general soil is sand, but it is very frequently exceedingly rocky, and in some places stony. It is flooded from the early part of June to the middle of January, varying 10 or 20 days as to the period of its rise, and 20 or 30 days as to its fall. It is subject to some irregularities, being low at intervals within the usual period of flood, and having sudden rises of short duration at the early and latter portions of the period of drought, during which more than half its bed is dry, the water laying or [?] *slightly current in one* main and numerous lesser channels; it is very generally fordable in the dry season, but, both from depth of water and rockiness of bed, there are many particular exceptions; at the best fords the depth of water in the dry season scarcely exceeds 2 feet.

Toongabhadra.

General Character.—Its general character is much the same as the Kistna, already described; its general breadth is not much less. Its banks generally rather high are not so much so as the Kistna. The soil of the banks is sand or loose earth; the bed is greatly even and generally of a sandy soil, but having in many places a great intermixture of rock. The period of its flood has nearly the same commencement as the Kistna, that is, in the month of June, but it becomes fordable in December, and sometimes sooner in a more advanced period of the dry season. It is very generally fordable.

Streams which flow into the Kistna.

Koanwang, the confluence of which with the Kistna is between the Gunji-hulli and Dewursoogoodoor ghauts about 12 miles north by east of Raichoor, is somewhat the most considerable of the several nullahs which fall into the Kistna. It is a very rapid stream for a short time after heavy rains, but seldom proves a great obstacle to passage; its bed and banks are of a loose sandy and earthy soil; it and the Shakawaddiwang, a branch of the same, have generally some little water in their beds throughout the year. All the other small nullahs are of a nearly similar description with the above, varying only in degree of character according to their size; their banks are generally steep, but not high, of earthy soil. The beds for the most part are sandy, but some of the smaller kind are of loose soil and liable to become boggy. Water is seldom found above the surface in the dry season, or if so is only used for cattle, but all the larger sort of these secondary nullahs furnish much water by slight excavation of the bed. The nullahs, having their course for the most part through a loose soil of black earth, are wide in proportion to the distance of their sources.

Streams which flow into the Toongabhadra.

Moosky Nullah.—This is by far the most considerable of all the secondary streams; it rises in the elevated ground between Kooshtugi and Gudjuntergurb, and after flowing about 40 miles in a nearly north-eastern direction it turns considerably to the south of east, and after a further course of near 40 miles joins the Toongabhadra at Yuduwal, opposite to Chaggi. In the dry season this river affords abundance of excellent water from a pure sandy bed. In the wet season it is liable to be flooded for one or two days together, but having generally a broad bed and low banks with a clear channel the water is seldom very high, and never long in passing off. The several streams which join the nullah near Dedugi are of a similar description, but can never become obstacles to passage.

The nullahs joining the Toongabhadra a little below Chikkulburwi, at Kalurki, at Hurruncelli, and at Rajawoloo are all of character as to supplying good water

from a sandy bed, their banks, though sometimes steep, are nowhere very high; they are never flooded to any long period, and are in other respects devoid of remarkable character as to passage in the rains.

The small nullah joining the Toongabhadra below Koreripad, in the Allumpoor pergunna, has a muddy bed and steep banks, and is apt to retain much water during the monsoon, which renders it liable to be of inconvenient passage.

Anicuts.

Of this description of canal there are none for the supply of tanks of a nature requiring notice. On the Kistna no works of this kind are found, the banks and lands near them being too high. On the Toongabhadra only one work of this kind has been noticed. Near Jookoor, about 13 miles east (a little south) of Bhunoor, a strong dam is carried with an exceeding oblique course beyond the centre of the river, and forces a portion of the stream into a conduit that conveys it near the bank of the river to Beechal, where it terminates after a very winding course of near 7 miles. It is intended to irrigate the wet and garden cultivation extending along the bank of the river more than a mile both above and below Beechal, which purpose it effectually accomplishes.

Lakes, Tanks and Reservoirs.

There is nowhere a sufficient body of water collected to be denominated a lake; the largest will most appropriately come under the head of tanks. Of these the number is but small; the soil of the country, generally black, not being suited to retain water or to being irrigated with advantage, it is the larger tanks alone, and of those only a few, that retain water through the year. In the central parts of the Dooab there is a rather general deficiency of water, so almost [?] other parts intermediate between the secondary nullahs, upon which therefore the sites of the villages are most frequently chosen. It is only on the banks of the larger of the secondary nullahs that water is found in sufficient quantity or sufficiently good; the quality of water drawn from wells or from the higher parts of nullahs is generally brackish, and cattle are often to be sent to distant places to obtain their necessary supply. When the soil inclines to be red, tanks are found to be more numerous, with small strips of wet cultivation behind. The water of wells in this description of soil is apt to be harder than the natives like, but in being less brackish is superior to that obtained from the black soil.

In the pergunna of Alumpoor the tank at Keeatoor is the only one that is expected to retain water throughout the year, and it often fails.

In the pergunna of Jeej, which abounds more in red soil, the tanks become more numerous. The following are the principal:—Tummapoor, Kondairoo, Iskial, Moonagal, Condeypull (of Foodoor), Yailkoor, Tuppelamursoo, Jeej, Wudupolli, Chinna, Tondrapad, Poolicul and Dodi; each of these usually contains a small quantity of water throughout the year, and irrigates a small extent of paddy cultivation immediately after the rains. Of the above tanks that of Tummapoor is the largest, has a great supply of water, being supplied by good nullahs; that of Kondairoo is also somewhat superior to the others, which frequently fail in retaining the expected supply during the dry season.

In the pergunna of Durroor the Sungal tank is the largest; it has a very high and broad bank stretching across the narrow valley from one low height to another; during the rainy season it contains a very large quantity of water, and has always a sufficient supply during the dry season; it is supplied by nullahs having their rise in the Durroor and Realumpad hills. Next in consideration are those of Julludubunda, Kukulawaram, Purmal, Peddipad. These are expected to retain a small supply through the dry season. Inferior to these, but somewhat more considerable than the rest, are Durroor, Marlubeedoo, Ghutt, with several small ones in the narrow valley north of Ghutt.

In the pergunna of Raichoor there are a few tanks near to and east of the meridian of Raichoor, where the soil is chiefly red; but to the west of this meridian, the soil being black, there are no tanks but of a small size and such as become dry immediately after the rains. These tanks are on the north; the others, on the south

side of Raichoor fort, have their sources in the numerous heights about Raichoor, and during the rains each contains a good body of water. [That to the] north of the fort is said usually to dry up in the hot season : that to the south retains water throughout the year after a favourable rainy season, but not otherwise. The streams from these tanks uniting fall into the Munsulapoor tank, which has a large and strong bank in good repair, and is reported to contain water through the year. The superfluities of this tank are received into that of Marchair, which is superior to all the others in size and quantity of water. The bank is a work of the zemindar, who resides in the adjoining village, and from being much interested in the perfection of this reservoir it is constantly improved. It contains water throughout the year; irrigates a large orchard and betel-vine yard made by the Raja, also a small strip of paddy fields, and can be made to swamp the environs of the Marchair gurhee. The tanks of Yeyruggeri and Goorjipulli irrigate a more than ordinary quantity of paddy cultivation; those of Malliabad, Kerreboodoor, Deywunupulli are each in good order and usually retain water throughout the year; those of Marchairla, Toontapoor, Kutla, Astcoor, in some degree inferior to the former, are superior to the generality of the tanks, and are expected to retain a small supply of water through the hot months after a tolerably favourable season of rain, and each irrigates a small extent of rice cultivation.

Bhunoor.—In this pergunna there are no tanks or other reservoirs of water of a character requiring notice; the several streams already mentioned render tanks less necessary than elsewhere.

Cavital.—In this pergunna there are a few small tanks situated in the small narrow valleys formed by the fall of the table heights; none of them are expected to retain water in the hot months; that of Cavital, which is the largest, is in a state of ruin, the bank having burst some years since. The tanks at Gullug, Hooligoodda, Chundunkerri and Moondergi, are each in good condition, irrigate a small quantity of rice ground, and usually contain water throughout the year.

The tank at Jalihal under favourable circumstances retains water throughout the year, as does that of Hoonukooni, in the Mosulukul pergunna.

Mountains, Hills, and Geological Remarks.

The eastern part of the Raichoor district till about the meridian of Jeej and Durroor is devoid of mountains. The heights of Tunnagull and Wadupalli are almost the only ones entitled even to the denomination of hills. The heights indicated in the plan are little else than rocky summits of all heights intermediate between the surface of the ground and 200 or 250 feet; the generality of them are between 50 and 100 feet. The highest and largest groups are situated near the Kistna about Nizamconda and Anantpoor; where they lie in short, almost unconnected, and irregularly disposed ridges; they consist almost entirely of granite rock. Some of the lower heights seemed formed almost of one entire stone, but by far the greater number are composed of angular blocks irregularly heaped: their summits, in particular, are thus formed. Heights of this description but lower and disposed only in small groups abound in the southern parts of the Jeej pergunna and over a tract extending from south-east round by the east nearly north of Raichoor; in this tract the soil is red, gravelly and rocky, the upper soil partaking very largely of the decomposition of the rocks. The soil is, of course, poor and unprofitable, but, the rocky nature of substratum maintaining the water near to the surface, tanks are more advantageously formed in this soil than in the earthy black one, which, though in its nature less absorbent perhaps than the red soil, is of a depth such that the water finds no very continued support. Towards the junction of the rivers, or about Goondimulla and Hoopalpad, also about Guduwall, and very common in some parts of the Jeej pergunna, the rock is of a black slaty granite or gneiss. The strata of these rocks are found under all inclinations between perpendicular and horizontal, most of them perhaps being seen in a somewhat deranged state; about Goondimulla and Hoopalpad the fragments of this description of rock entirely cover the surface of the ground; the same at Pangtoor and nearly throughout the Allumpoor district. The soil has an inconvenient

quantity of other fragments which are very thin and of a superficies hardly equal to a square foot. Some hills have a great portion of quartz rock ; these have generally a long ridge-like form with the rocks appearing through the surface of the ridge in a long and often very straight line ; these hills have usually a smooth surface of a red strong soil exceedingly steep through half or two-thirds of their height, but having an exceedingly easy bank or slope the rest of the way. The most remarkable of this description of hills is Mallapoor, a conspicuous and solitary height about 100 yards elevation, and lying about 5 miles north-west of Raichoor. Another is called Uddamurroo, and is situated 4 miles east by south of Raichoor. Induwak, the highest hill of the Jeej pergunna, and about 11 miles west by north of the kusba, is also of this description. This character, though much less so than the granite rock, is common in many parts of the Jeej and in the eastern parts of the Raichoor pergunna, but it does not prevail so much to the east of Raichoor.

Goarukul hill, situated about 18 miles south-west of Raichoor, and about 3 miles north of the Toongabhudra, is a singular expression of craggy rock ; it has three remarkable peaks with an infinity of small craggy points between them ; it is formed of granite ; towards the top the general ridge of the rocks is precipitous, the base is extended and gentle. This is the most remarkable of all the rocks in that part, but those of Gutt, Beechal and Gunduduhul are also conspicuous from height, and remarkable as to their rocky composition ; their heights may have from 350 to 450 feet elevation. Rampoor Gutt, about 13 miles north-east of Raichoor, and about 2 miles south of the Kistna, is a solitary, conspicuous and remarkable craggy rock of about 500 feet elevation ; it is precipitous on all sides towards the top, but has a bank about its base.

Bhunoor hill, adjoining the kusba of the Bhunoor pergunna, is a very conspicuous rock about 600 feet high ; it consists of a ridge several furlongs in length, of which the W. western [?] part alone is high ; the top of this ridge is of an exceedingly craggy appearance, and the highest points of it are inaccessible ; the surface of the lower part of the side is rugged, and, except near the bottom, steep ; the rock is entirely of the granite kind and lies in large angular masses and blocks, of which some have fallen from their native seat within the recollection of some of the present inhabitants. The rocks near Meera Manuvi, standing about 6 miles north-east of Bhunoor, are of the same craggy nature as those of Bhunoor, but are not so high or so massy.

Koorwi rock, situated about 4 miles nearly east of Bhunoor, is a specimen of very bold rock, a nearly [?] and stately height ; it is about 450 feet elevation ; the rock has a much more considerable degree of entireness than is at all common. The most perfect specimen of this sort of rock is that of Badabunda, near 3 miles east (a little south) of Raichoor, in the neighbourhood of which there are many others partaking in some measure of this character.

Guvigut, situated upwards of 7 miles from Bhunoor, and *Seerewar*, situated upwards of 13 miles north (a little west) of Bhunoor, are nearly solitary hills, the former about 450, the latter about 400 feet elevation ; they are both rather steep, but Guvigut is especially so, and is quite precipitous on the south-east side. They have small table tops of rock and red earth, their sides mostly rocky ; that of Sirruwaram has a tank of most pure water on the western side.

Unjulu, situated upon the right bank of the Kistna and about 5 miles north-west of Deodroog, is a conspicuous solitary height, rendered more particularly remarkable by bearing a very lofty tower on its summit ; it is about 450 feet high, and consists chiefly of granite rock, but having a great intermixture of earth.

Of the hills west and south of Durróor, that of Durróor itself, situated about $2\frac{1}{2}$ miles west (a little south) of the fort is somewhat the highest ; it is an exceedingly rocky height of a pyramidal form ; towards the top it is formed exclusively of large blocks of rock, one of which crowns the summit ; lower down the sides are less steep, and towards the bottom quite gentle ; from this hill there branches in a north-westerly direction a greatly irregular group of low rocky heights stretching 4 or 5 miles. These rocks,

containing much earth in their interstices, are thickly covered with jungle ; a nearly similar ridge of heights branches off for 2 or 3 miles in a direction west by south.

Corryconda hill, standing about 4 miles north of Durroor fort, is upwards of 400 feet high ; it is a remarkable and somewhat conical hill of a greatly rocky soil, but thickly covered with jungle.

The *Reealumpad*, hills lying about 4 miles south by west of Durroor, form a ridge but little inferior in height to the hill of Durroor already mentioned. The ridge lies in a direction inclining a little to the north of east ; it keeps nearly of the same height through a course of about 2 miles, and then falls off into ridges of slopes and low hills. This ridge after a curved course of about 5 miles divides into several branches ; those passing to the north and north-west keep of a considerable elevation and occupy a broad space. They at length terminate on the *Nerrutum-pad* nullah. They are for the most part very thickly covered with jungle ; their soil is poor, being a red gravelly kind, and the country about them waste. Another branch of slopes, after passing about $2\frac{1}{4}$ miles north of Gutt, falling (from an elevation that may entitle the ridge to be considered one of low hills) to a more moderate elevation of broad open slopes (which are cultivated), extends to a junction with the Raichoor hills, and forms the division of the tracts contributing their waters the one to the Kistna and the other to the Toongabhadra.

The group of hills to the south of Raichoor and irregularly extending to the east and north-east of it stand in lesser groups, so far divided from each other that the intervals may be cultivated and very readily traversed ; the southernmost, or *Malliabad*, is the largest group, and contains somewhat the loftiest tops. The highest is that on which the trigonometrical station has been made ; it is determined by Colonel Lambton to be 1,854 feet above the level of the sea, and probably some little more than 200 yards above the level of the plain on which it stands. Many of the more northern tops are but little inferior in height to this. Some of these hills have at a distance the very singular black appearance as if they had been recently exposed to the action of fire. The southern or *Malliabad* cluster is of this appearance ; on a close view it is found to consist of large blocks of granite very little angular, but having the exceedingly singular appearance of being almost as much rounded as if they had been subjected to great attrition. That such may be the case with the lower is greatly probable, but it may be less easy to account for this character in the higher blocks—they are heaped so confusedly on each other as to have long interstices between them, and these are not only so large, but also so devoid of all obstruction, that men or animals may penetrate very considerable depths below the surface. The surface of the hill is so entirely free of earth that the ascent to the highest half is effected by stepping over deep interstices from one stone to another, and, although the top is of considerable breadth and length, there is nowhere a level or smooth spot of but 3 or 4 yards square to be found. In the top adjoining (towards the S.E.) that on which the station has been taken, and in several of the hills nearer to Raichoor, some of the interstices are of a character such that the natives consider them more peculiarly as caves, and they have become of considerable notoriety from having been at various times occupied by banditti. The summits of these hills have no peculiar character, some being round, others peaked ; all are generally steep, and generally more so towards the south-west than to the other quarters ; towards the bottom they are less steep ; their surface is very rugged, and towards the foot jungly.

The mountains at *Kulloor*, near 12 miles south-west of Raichoor, are composed of somewhat similar materials to these already described. They are remarkable as high mountains standing in a small group and occupying a very small base. Their height is nearly the same as *Malliabad* ; that lying at the south-west angle of the village is somewhat higher than the rest.

The heights between *Sirruwar* (13 miles north-west, a little west, of *Bhunoor*) and *Deodroog* are all of a rocky kind—that portion of them about *Keeadigerir* and *Anikeyri* is particularly rocky ; they lie in long ridges, some of the summits of which are sites of villages placed there with a view to security, but these are generally falling to decay ; the highest in this southern cluster of hills is that of

Rampoor, rendered remarkable in having a large tower upon its summit ; the height of this hill may be near 150 yards, the general height of the ridge is about 100 yards. The hills about and immediately south of Deodroog are of an equally rocky nature ; many of them have broad table tops, that of Gowrumet (situated near a mile west of the centre of Deodroog) is one of the highest tops, and may be about 200 yards above the plain ; that of Somulapoor, 3 miles west by south of Deodroog, is but little inferior in height. These is a peculiar formation in the hills about Soolutugoodda (near 6 miles south-west of Deodroog) : those to the north of the village have a gradual ascent from the south, but a steep and deep fall towards the north and north-east. Mullapoor, 4 miles east by north of Gullug, stands on the edge of a wall having a steep fall to the north-west or towards the Kistna, which is not distant, but an inclined plane towards the south or Toongabhudra, more remote ; it is not uncommon among those heights where a diversity of nullahs have their rise to find this difference of fall in the different sides of the hills, according as the large streams (deciding the general level of the country) to which they are opposed are proximate or remote ; those hills and the country about them are rather thickly covered with jungle. The height bounding the map on the west extending from the Kistna in an eastern direction to Jalial, and thence south and south-easterly to the parallel of Gullug, is a greatly ramified wall of heights bounding an exceedingly hilly and rocky tract of about 40 square miles. This tract possesses several small cultivated tables, but is for the most part exceedingly wild in feature ; its table is of greatly irregular surface, but with a general inclination from the wall already mentioned towards the Meyderoyen Coata Nullah on the west ; the wall is of a rocky soil, chiefly granite or gneiss, covered in many parts by a red gravelly soil ; the fall is generally steep, and in many parts covered with much jungle. The continuation of the wall further south to Cavital, thence easterly and southerly, passes numerous branches of heights, the principal of which extend to Kussundodi, $5\frac{1}{2}$ miles south of Gullug ; towards the west a fine table of small [?] declines from the edge of this wall by an exceedingly easy fall towards the Mederoyen Coata Nullah in the Moodgul Circar, but towards the east and south-east their fall into the Raichoor Circar is steep. These heights are for the most part of a rather smooth but stony surface. Their soil is red earth, gravel and stones chiefly, but in many parts they are rocky slaty granite or gneiss chiefly. The jungle upon them is much more scanty than on the more northern part of the wall ; the part of wall about Cavital, as well as the several branches of slopes from it, are all so broad, and so nearly of the same height, that from no one top, either on the wall, its branches or its table, can the horizon be completely commanded, but is always obscured in the direction of the greatest of the neighbouring heights ; the general height of these ridges may be about 100 yards above the plain.

But as the plain rises considerably and irregularly towards the foot, the apparent height of the ridge is various, although it is perhaps never above 100 yards, and may in some places be little more than half that elevation above the adjacent plain ; the table of these slopes is nevertheless of great positive height ; the elevation of three points above the level of the sea have been determined, *viz.*, Tawugu 1,960 feet, Koteykul 2,010, Hoosseinpoor 1,930 feet, which shows the table to be 50 yards higher than the mountain of Malliabad (distant not more than 40 miles in an eastern direction), which has been conjectured to be upwards of 200 yards above the level of the plain, it is the same height as the Mooskie mountain ; which stands 16 miles S. by W. of these heights upwards of 200 yards above the surrounding plain, the same holds in comparing it with Rowdicoonda hill, situated about 35 miles to the south, all which may show the great height to which the country rises midway between the two rivers.

Construction of the Country.—This subject has necessarily been in a great degree illustrated in describing the details of the mountains and other heights, but it may be described in a more general and connected way. It is to be considered as consisting of two plains, one inclining to the Kistna, the other to the Toongabhudra, from a line of greatest elevation having its course from the high table

a'ready described, and along the broad ridge of heights branching thence north of Cavital to Kūssandi, where there is a fall of the ridge, but which again rises to the height of hills at Udugullagoodda, 4 miles N.E. of Kussundodi, and curving thence it leaves Gullug 2 miles on the west or left, passes close east of Arukeeri and Keeadigerri, both which places may be considered as being nearly upon the ridge. At Keeadigerri the dividing line quits the ridge of hills, and with the character of a very broad (inclining to flat) swell of a bare black soil passes between the small rocks of Neelgull and Gunneykul with nearly a direct course to Raichoor, going close south of which it afterwards becomes of a more detailed character, being less direct in its course, and having a great number of summits of a bolder profile and of a red soil with numerous low heights and small groups of rocks upon it, till reaching, as before described, the meridian of Gutt, about 2 miles north of the town, it again becomes the elevation of low hills till it reaches the Reallumpad ridge of mountains, whence it passes in a direction first south, afterwards nearly east, being again broad, and so nearly flat as to be in a great measure unobservable, but becomes more evident after passing Vomulu, and continues so till its final termination at the Sungam; from the Reallumpad hills to Yaitcoor it is of a rocky surface, but thence to the Sungam generally of black earth, and is cultivated as entirely as any other lands. From this main ridge others branch off towards the Kistna and Toongabhudra; the ridges falling into the latter river have generally a direction to the eastward of south: such is more especially the case with some of the ridges inclining to the Kistna; but there is no prevalent peculiarity in this nature, some of the ridges tending directly to the rivers, others have a great obliquity to it, so as to make the course of the lesser nullahs of some length; these lateral ridges, like the main one, are generally of a broad and nearly flat description, and their fall towards the great river is almost imperceptible, because so extended. The hollows between the ridges are broad and shallow, so that the plain as to practical character is nearly level. With respect to the soil it will be generally correct to consider the slopes represented in the map as long and broad to be of a black soil—such, for instance, as those between Raichoor, Bhunoor, Bullugunoor, Pamunkelloor, Cavital, Seereewar, Ramdroog, thence to Kistna, and descending along that river to the Koanwang: but between Raichoor and Ghutt, about Guduwal and Anantapoor, as well as in the several parts of the Jeej district bordering on the Toongabhudra, and generally in the immediate environs of mountainous, hilly and rocky tracts and detached heights, the soil may generally be expected to be of a reddish quality, but both soils are greatly intermixed—the proportion of red soil is probably not much above one-eighth of the black. In standing on Malliabad hill a great contrast is presented to the eye; on the west is seen an extensive (and from the heights it appears) level plain of a naked black soil, or but thinly marked either by villages, hills, woods or other object that catches the eye, but towards the east the soil is red and (at least for some time after the rains) covered with pasture. Small rocky heights and low hills, tanks, villages, date and palm-woods diversify the scenery bounded for several points towards the east by the woody mountains of Reallumpad and Darroor. The black soil is in general almost entirely free of stones, but in many places, particularly in the Allumpoor district, has a great deal of greiss; the red has usually a great number of large and small pebbles and angular stones of similar composition with the rocks and stones of the hills. The depth of this black soil, judging from such places where wells have been sunk, is generally 15 or 20 feet. The substratum is generally granite rock, but much stony marl is found above and intermixed with the rock; this lower stratum of rock has usually many fissures filled with the stony marl, and it is in this soil that water is generally found.

FORESTS, WOODS AND JUNGLES.

The jungly tracts are distinguished on the plan; the general character of the jungle is but a rather high and generally very open underwood, such as may be readily traversed by foot-passengers and such as might very readily be cleared away; the only greatly jungly tracts that need be considered an exception to this character are, 1st, the tract about Anantapoor (6 miles S. E. of Guduwal) stretching

in several narrow branches divided by clear and cultivated intervals nearly 12 miles along the Kistna, where the jungle is somewhat higher and thicker than is general; 2nd, the heights on each side of the Ahloor valley (near 6 miles W. of Durroor) terminating on the Kistna at Nerrutumpad. The tract on the east side of this valley is about 11 miles from north to south, and varying between 2 and 3 miles in breadth. The tract west of the valley is nearly of the same dimensions. The jungle in these parts is higher and thicker than in any parts. Little or no timber of a large size is produced. The only article of any value procured from these jungles is the root of a tree variously called, but generally termed *modhu*. This is collected, dried, cut into chips and pounded, and then sold to the dyers, who obtain from it a red dye. The hilly tract south of Deodroog extending to Kceadigerri round by Gullug, and thence northerly by Jalihal to the Kistna, is jungle, but more especially so N. E. of Moondurgi; no timber of any size or value is produced. The heights north of Cavital are covered only with a very slight jungle, which is remarkable in containing an exceedingly great quantity of the root for dyeing before mentioned.

Of woods there are two kinds, palmyra and date; these are distinguished on the plan. It will be seen that on most of the larger of the secondary nullahs in the pergunnas of Allumpoor, Jeej, and the eastern parts (or more particularly east of the meridian of the kusba) of the Raichoor pergunna, and on some few of the Cavital and Mosulukul pergunnas, date woods are common. These trees are of a very stunted growth generally, but 10 or 15 feet high, being in no degree cultivated, and their juice extracted immediately it is produced; they extend in a narrow strip along the nullahs, away from which they are but rarely found. The *tari* produced from these trees finds a very ready sale, and even greedy consumption, in a country abounding, as this does, with Beyders. It is brought into the larger villages and principal towns in skins conveyed by buffaloes, and dispersed to stations on the roads, and to the lesser villages in earthen pots. Any excess at the plentiful seasons is distilled. These woods are all farmed at a high rate. The district of Jeej abounds in palmyra trees, which are scattered over the country rather than collected into clumps. Some of these trees are said to be of a great, close and black grain, and are sold for consumption in the neighbouring districts, but they do not form any staple of trade.

As to groves, orchards or any plantations of trees, they are exceedingly few in number and of but the most ordinary description. The Rajah's garden at Marchair and the palm gardens already mentioned at Beechal are the only ones that are deserving notice; the former abounds in every choice tree that could be procured, particular mango trees, which are numerous and said to be of a superior quality, obtained from Goa.

POLLIAMS; JAGHIRS; AGRARUMS.

The lands and rentals of the Raichoor district are all classed under some one or two of the following heads:—

Khalissa, which seems generally to mean the unalienated property of the manor, to whomsoever it (the manor) may belong; whether the Sirkar or individual proprietor; in a stricter sense it means the lands immediately belonging to or held of the Government.

Oomuli, which imply lands given in a perpetual lease upon terms of greatly reduced rent to compensate for services in some hereditary offices, as Curnum, Gowdu, Desmook, Tuluwadugi, with some others, through their various gradations of Nad and Surnad.

Jaghír, a sort of lordship in which there is seldom or never a reservation of demesne lands. The Baron or Jaghirdar but seldom even resides on the estate, but farms it or sends a servant to manage it as Amildar. The rights of the Jaghiredar are of a sovereign kind, as he controls both the revenue and judicial concerns of his barony. This character applies to the larger kind of jaghirs, also to many small ones consisting of but one village, but in most cases where the property is small the claims of the Jaghirdar (as even in these cases he is often styled) are only for a certain amount of revenue. Jaghirs are not all of similar tenures; some are held as principalities, as estates, as pensions, as a fund for certain establishments, which latter kind are seldom hereditary, but are liable to be resumed on a relinquishment of the service of such establishment. These are called Tunkwah jaghirs.

Merasi is applied to hereditary claims, of whatever nature, when appertaining to land, and is often extended to such claims as fees whether upon villages, districts, or branches of agriculture, commerce or customs.

Zemindari.—The various shades of tenure to which this name is applicable in different parts of India renders it proper to explain how it is understood in the Dooab.

It is there generally applied both to hereditary proprietors and farmers seeming to be a little implying independent rule, and is applied to the largest State exactly in the same way as to the farmer of a district or the proprietor of a village.

Religious Establishments.—Of these there are none upon a scale worth particular notice. The number of Jungum Muths is very numerous, and most of them have some small funds as Enams of lands or fees for maintenance upon a humble scale. At Allumpoor and Guduwal there is a small establishment of Brahmins to the pagodas of these places. The Gooroos Stree Suttia Bhodia Swamy and Stree Suttia Dhurma Swamy have each 4 or 5 villages, but the villages are distant from each other, and do not in any degree partake of a religious character.

The following table exhibits the names of the principal holders of land in the Raichoor Circar, the tenures by which they hold, and the number and situation of the villages they hold :—

Holders of Estates.	Tenures.	Allumpoor.	Durroor.	Jeej.	Raichoor.	Bhunoor.	Cavital.	Berrudona.	Mosulukul.	Jalial.	Total Number of Principal Villages.	By whom the Properties are managed.
Shureear Mulk Bahadoor....	Jaghbir	40	40	Amildar.
Kurnool State	Sovereignty ...	5	5	Kurnool Government.
Edooroo Khan	Jaghbir	1	1	Edooroo Khan.
Guduwal Rajah	Allodial.....	44	80	124	Guduwal Rajah.
Daood Ulleekhan Bahadoor.	Jaghbir	12	12	Raichoor Zemindar.
Mallabad Peerzada	Do. ....	...	...	...	7	...	...	...	...	...	7
Mooneeram Mulk Bahadoor.	Do. ....	...	...	...	4	...	...	...	...	...	4
Hadeeat Dowlah	Do. ....	...	...	...	3	...	...	...	...	...	3
Syedood Dowlah	Do. ....	...	...	...	2	...	...	...	...	...	2
Mahomed Saib Meean.....	Do. ....	...	...	...	2	...	...	...	...	...	2
Detail	Do. ....	...	...	12	4	4	...	...	...	...	20
Unni Achari	Do. ....	...	...	...	3	...	...	...	...	...	3
Buddurut Dowla	Do. ....	...	...	...	2	...	...	...	...	...	2
Hossein Saib Peer zada	Do. ....	...	...	...	12	...	...	...	...	...	12
Qist. Sar Nad Gowdas	Oomuli	12	2	2	16	Shorapoor Rajah, under whom each Poligar manages his district.
Nadu Gowda Neelkuntrao	Do. ....	...	...	...	...	16	...	...	...	...	16
Do. Jyapa	Do. ....	...	...	...	...	10	...	...	...	...	10
Dessai of District	Do. ....	...	...	...	3	11	...	...	...	...	14
Moorari Row	Do. ....	...	...	...	...	4	...	...	...	...	4
Despandi	Do. ....	...	...	...	...	3	...	...	...	...	3
Raichoor Rajah.....	Zemindary .....	...	...	...	102	15	43	...	...	...	190
Shorapoor do.	Do. ....	...	...	...	...	...	16	47	27	90	7
Gullug Poligar	Merassi .....	...	...	...	...	...	4	...	...	3	7
Arukeyri Poligar.....	Do. ....	...	...	...	...	...	2	10	11	...	23
Keedigerri do.	Do. ....	...	...	...	...	...	...	6	...	...	6

Allumpoor Jaghir.—This jaghir belongs to Shureear Moolk, nephew to Assud Allah Khan; it is supposed to be worth from one to one and a half lacs of rupees annually. Shureear Moolk resides at Hyderabad; his district is managed by an Amildar, who resides at Allumpoor, and who is immediately responsible to the Jaghirdar.

Guduwal.—The Guduwal districts comprise (with the exception of four or five villages which have become alienated to the Raichoor Circar) the entire pergunnas of Durroor and Jeej; the value of these districts is estimated at from four to five lacs of rupees, the tribute to the Nizam's Government is said to be 60,000 rupees. The Rajah's tenure is that of a tributary sovereign, being supreme in the control of all affairs within his own districts. The rise of the family was a little previous to the time of Aurungzebe, when the Beejapoor State became too distracted to check the encroachments of its subjects, amongst whom none were more active or enterprising than the class of reddyies or farmers, who from the most ancient times seem to have been intent for rule and authority to the utmost of their means; the most ancient inscriptions showing the country to have been in most places parcelled out

into portions which in the present day are familiar under the name Polliams. The first pretensions of this family were only to the extent of being Poligars, but it appears to have been part of Aurungzebe's policy to deal out favours and gratifications, and to confirm all ably supported pretensions, destructive of the resources of the State, amongst the subjects of the Beejapoor kings. Under this policy the Guduwal Poligar obtained a sunnud of royalty, which they still retain. The military traditions of Guduwal present a proud detail of the victory gained over a large army to the Beejapoor State, which, failing in their attempt to wrest the fort of Durroor out of the Poligar's hands, were obliged to attempt a retreat, in which they lost their colours, which have ever since been triumphantly exhibited as those of the Guduwal chiefs. It is of a green ground studded with golden hands, but a small white circle has of late been introduced by order of the Nizam, in attention to the prejudices of the Kurnool State, greatly offended at the indignity they imagine to be offered to their character and religion. The Guduwal Rajahs at one time were able to exact a tribute from the Kurnool State, which though they have not been able to enforce for the last fifty or sixty years is nevertheless not even yet forgotten, and would be asserted under the least prospect of advantage in doing so. At present the military force of the Rajah is about 60 horsemen and 600 matchlockmen applicable to all military service, besides which there is a very large body of peons of a character more resembling militia, who reside in their own villages, and for occasional liability to local service have considerable abatements on the rents of their lands. These people are variously armed with swords, pikes or matchlocks. There is a total of twelve garrisoned posts in the districts of Jeej and Durroor, which are described under the 4th head of this memoir, so that it is unnecessary in this place further than to remark generally that none of these places can be considered strong as to the European mode of attack, but the best of them are of competent strength against native attacks. Some of the places are in very bad repair, even the larger are in but an indifferent state. The masonry seems generally pretty good, but the ramparts, parapets, and such other parts of the upper works as may be built of mud are in a very neglected state. The ordnance which these works possess is few in number, small in calibre, and very badly mounted.

The name of the present Rajah is Seetaram Bopal; his predecessor was his uncle, who when near his death, having no children born to him but his wife being then pregnant, desired the succession might devolve upon his posthumous offspring if a male, otherwise upon the present Rajah; a girl being subsequently born the present Rajah succeeded, and is to marry his cousin, now about ten years of age. After the Rajah's accession a conspiracy was formed against him by another branch of the family; it was sufficiently commanded [?] to induce the Rajah to allow it to have its course for some time, but on a convenient opportunity was entirely quelled by the death of the principal, which was effected when the latter was at his devotions in the pagoda. The Rajah is a very devout Hindoo, spending much of his time in religious ceremonies, and is supposed to be a good deal under the influence of the Brahmins; he is, however, a very respectable character, not deficient in abilities or conduct. He is some little below middle age and is of a personable appearance. His durbar is very numerously and respectably attended, and the greatest decorum observed there.

Raichoor Zemindary.—The Raichoor Zemindar farms all the Sirkar claims within the Doab except the Deodroog portion, which is farmed by the Shorapoor Rajah; these claims comprise rents, fees, and tributes; the extent of this farm is stated in the table given below:—

Circars.	Pergunnas.	Quantity of each Pergunna.	No. of Villages	REMARKS.
Raichoor ...	Raichoor.....	The whole division...	156	These belong for the most part to the Sirkar, but comprehend also much Jaghir and Merassi property over which the Zemindar is the agent of the Jaghirdar, and farmer of the tributes from the Merassi proprietors.
	Bhunoor.....	Ditto ...	58	
	Cavital	Ditto ...	43	
		Total...	257	

HYDERABAD AFFAIRS.

Circars.	Pergunnas.	Quantity of each Pergunna.	No. of Villages	REMARKS.
Moodgul ...	Moodgul.....	3 Summutts.	21	} Sirkar property chiefly but includes much Jaghir and Oomuli property.
	Sindoonoor.....	All.....	69	
	Rowdicoonda ...	Do.	33	
	Copal	Do.	127	} Jaghir of Mooneran Moolk. Polliam of the Goodoogoonta Rajah.
	Yelboorga	Do.	29	
	Mederyen Coata .....	.....	29

With the exception of Mederyen Coata the Zemindar is, if not nominally, at least virtually, the supreme controller of all the country stated in the foregoing table, amounting to about 2,700 square miles. The present Zemindar's father was a Gowdu or Patail of some villages near the Kodelli Sungum; his first employment in the Dooab was as manager of Mooneran Moolk's jaghir, of which Marchaid, the present residence of the Zemindar, was considered the kusba; this gained him powerful patronage, and being active in the service of the Sirkar in assisting to settle its authority in the Dooab he was promoted to honours and titles, and finally obtained a sunnud of installation to royal honours.

The present Rajah or Zemindar is a young man of ill-favoured and mean appearance and of the Lingait caste; he is of proud and haughty pretensions, though possessed of but most ordinary manners and address; he has the reputation of being oppressive in his demands and tyrannical in enforcing compliance to them.

The districts are managed jointly by the Rajah and his Amildars, of which he has one in each pergunna, but these are generally some humble relatives who are without influence, and but very little looked up to. They transact, however, all duties of their district in the ordinary routine, submitting all other matters for his decision. The Rajah generally resides at Marchaid and seldom quits that place, but does so occasionally, as once a year or once in two years on a tour through his districts. The amount at which he farms his districts of Government has not been ascertained, but it seems probable that near 4 lacs of rupees are paid for the three pergunnas of Raichoor, Bhunoor and Cavital; but any amount of the revenue given only in general terms, even if correct, will be but little intelligible, it being liable to such detail of arrangements respecting jaghir, &c.

The Rajah maintains a body of horse said to be 1,000 strong, but probably not exceeding 500, and a body of infantry, including all his garrisons in the Raichoor and Moodgul Circars, of about 1,500 men, with a contingent of one company from Pangtoor, and commands the local services of a large body of militia peons. Of the established force, a proportion of about one-third are generally present with the Rajah, the rest are dispersed in the kusbas, towns and villages of the pergunnas, in no one of which in the Raichoor Circar is the number of troops very large; at Bhunoor, Cavital and Serruwuram there are generally larger garrisons than elsewhere. The posts at Serruwuram and Cavital are intended as checks to the predatory conduct of the tenants and dependants of the ejected Mirasdars of the Cavital district, also against the Poligars of Kceadigerry, Gullug and Arukeyri, who, under the protection of the Shorapoor Rajah, assert claims to fees (russums) on different villages of the Raichoor Zemindar, and are on the watch for opportunities to realize their claims.

There have been great disputes between the Zemindar and several of the principal Merassi proprietors, in particular with the Dessye and Nadu Gowdas of Cavital, the former of whom claims 11 and the latter 16 villages; from these they have been forcibly ejected, and the Zemindar endeavours to assume the management of the villages, but in this he finds considerable opposition on the part of the inhabitants themselves, whose villages, being walled or situated upon some rocky eminence, afford them sufficient protection against any but serious attacks, which the Zemindar has rather effectually applied against the villages of the Dessye, but seems averse to take the same measures with those of the

Nadu Gowda, feeling perhaps that he is unjustifiable in the lengths to which he has already gone. The Dessye and Nadu Gowda are refugees with some of the Dessyes of the Moodgul Circar; they live in some degree of concealment to elude the resentment of the Zemindar, and excite their old tenants to the most irregular acts against the Zemindar's interest and the security and quiet of the country.

Deodroog Polliam.—This comprises the lands both in the Moodgul and Raichoor Circars, but chiefly in the latter; they are as stated in the following table:—

Circar.	Pergunna.	Summits.	No.	REMARKS.
Raichoor...	Jalihal	All.....	...	Sirkar lands.
	Mosulukur	Do. ....	...	{ 17 villages belong to Poligars, the rest Sirkar lands.
	Berrudoni	Do. ....	...	{ Nearly one-half Polliam, the other part Sirkar lands.
Moodgul.....	Moodgul.....	Gonuwattal	7	{ Sirkar Polliams.
		Chundunkerri.....	7	
		Moondoorgi.	22	

besides which there are 7 villages of Raichoor, several of Cavital, two of Mederyen Cottah, belonging to what is called the Deodroog Talook, though Goonuwattal does not very properly belong to it, being locally insulated and but lately annexed.

The above portion of country constituted the Polliam of the Deodroog Poligar, whose family are of the Beyder tribe, their origin is said to be much about the same time and much in the same manner as that of the Guduwal house, already described. They seem to have begun by robbing and plundering the villages within the reach of their haunts. The villagers were soon glad to purchase their forbearance by the payment of russums or fees. With these resources they enlarged their sphere, taking some villages under their protection and forcibly seizing others; they increased in this way both their power and resources: Tradition makes him to have been so powerful at the time of Nizam-ool-Moolk's usurpation that his mere summons to the Shorapoor Rajah to evacuate the fort of Wugungerri (north of the Kistna) effected what the weight of the Nizam's power was unequal to, and on this occasion he received a regular grant for russums even more extensive than he had before claimed. In later times the Shorapoor house has had its turn of ascendancy, and, with the permission of the Nizam's Government, finally subdued that of Deodroog, which happened ten or eleven years ago. It is related of the Poligar that finding his circumstances becoming desperate he collected his family on the top of the Deodroog, and having seated himself with all his formalities in the midst of them smoked a cigar, which having nearly exhausted, he threw the remainder into the midst of a large quantity of gunpowder, he had previously disposed for the purpose, and blew up himself and family; only a few, who were absent, survived this occurrence, and the present representative of the family lives at Deodroog upon a pittance allowed him by the Shorapoor Rajah. The town of Deodroog is considered only as a rajasthan or capital, it having no lands, and standing on the boundary common to the Raichoor and Moodgul Circars it is not enumerated in the registers of the country.

The Shorapoor and Deodroog houses were both of the Beyder tribe, and very much intermarried, so that in the conquest of Deodroog the uncle destroyed the nephew. On the destruction of this house the lands of the Polliam reverted to the Sirkar, of whom they were farmed by the Shorapoor Rajah, and such is the arrangement at present.

The Gullug, Arukeeri and Keeadigerri Poligars are branches of the Deodroog house, and obtained their respective Polliams as share of the general inheritance or as gifts (dowries) in marriage; the tenure and conditions of these Poligars does not appear to have been much affected by the events that ended in the destruction of the principal house. With the lands they also had some share in the russums, which are never paid when the villagers have any hope from resistance. These

disputed claims are of the most disastrous nature. The Poligar maintains a threatening attitude, the villagers one of defence; or the Poligar makes no show of attack, but when the corn is near ready for cutting sends parties either to destroy or bring it away; this not only causes much distress, but also an irritation always on the watch for revenge, and the country is thus kept in a state of alarm, apprehension and distrust. These Poligars are all intermarried with the Shorapoor family, of which indeed they are considered as younger branches, and in this character have its immediate protection and patronage. The Poligars manage their own villages themselves, being accountable to the paramount authority only for their tribute, part of which is paid to the Raichoor Zemindar.

The interests of the Shorapoor Rajah south of the Kistnah are managed by two Amildars; one, a relative of the Rajah, resides at Jalihal, and has charge of that pergunna and of the Moondurgi Summut of Moodgul; the other who is an intelligent Brahmin and was the Dewan of the Deodroog Poligar, resides at Deodroog and manages the districts of Berrudoni, Mosulukul pergunna and the Chundunkerri Summut.

CATTLE AND ANIMALS.

The country is considered unfavourable to cattle of the cow kind, which are found to degenerate so much as to require constant importation, made chiefly from Nellore and Cummum Districts, whence large droves are brought at particular seasons, especially at the time of the Guduwal fair. The stock as maintained by this importation is of an average quality and appears sufficiently plentiful. Buffaloes are of the ordinary kind, possessing no peculiarity whatever. The proportion as to the number of this to the other species is small.

Sheep of the black woolly kind, and goats of the long-legged kind, are nowhere scarce; in most parts of the Guduwal District they abound, as also in the eastern and northern parts of the Raichoor District.

Horses are not bred in the district, and except the establishments of the Raichoor and Guduwal Rajahs already described there are not any bodies of horse; but very few are kept by individuals, and those only of a small size and inferior description.

Of camels and elephants there are only a few belonging to the Raichoor and Guduwal Rajahs and to Edooroo Khan of Pangtoor; the total number is probably not above six elephants and twenty camels.

Hogs are found at many of the villages, but of the same filthy kind as elsewhere.

Fowls are not in such great abundance as might be expected in such a fine grain country; latterly, owing to one or two bad seasons there has been a scarcity; in general they are moderately plentiful; there are of a small size generally, but about Allumpoor, Kurnool and Pangtoor there are some of a superior kind, from a stock originally brought by Musalmans for the diversion of their fighting.

Of wild animals, deer are by far the most numerous, and are found in large herds in almost every place. Some few cheettas and wild hogs are said to be amongst the hills and jungles between Durroor and Gutt, also amongst the hills south of Raichoor, and along the whole of the heights north of Cavital; these and bears are also found amongst the more insulated rocky hills in different parts of the district, but there is nowhere any serious apprehension of annoyance from these animals.

Of small game, there are hares, bustards, floricans, pea fowl, rock, blue and green pigeons, also a few wild ducks in the largest tanks, but none of these are in at all remarkable plenty. Deer and the smaller game are sometimes killed by the inhabitants, but by no means so frequently as might be expected with so large a population of Beyders.

REMARKABLE BUILDINGS.

Allumpoor.—The Hindoos consider Allumpoor as the western gate of Stricillum or Purwut, and corresponding with this notion of a holy lodge have built a large cluster of pagodas within the fort; they are strong and handsome buildings constructed of hewn stone and ornamented with a great profusion of sculpture; these have been mutilated, the buildings themselves some defaced and others destroyed by

Musalman bigotry, which has erected a musjid with the ruins, and on the site of some part of these pagodas ; other parts are turned into storehouses, but a portion is still reserved to Hindoo worship.

These pagodas are said to be, and have the appearance, of much antiquity ; they are of an unusual model, particularly the sphere, which is the frustum of a square pyramid, surmounted with a large and very compressed spheroid. In the immediate vicinity of these pagodas there are a great number of inscriptions, some of which assert so great an antiquity as the second, fourth and other early years of the era of Vikrama ; they record many offerings of land and fees given by persons of rank, authority and property, and establish the degree of high consideration in which this place has always been held.

Koodelli Sungum.—As with the Hindoos the junction of all streams is holy, it might be expected that at the junction of two such celebrated rivers as the Kistna and Toongabhadra there would be some indication of peculiar regard in the buildings or other works of art to be found there. This, however, is hardly the case ; there is but one pagoda ; it stands near the top of a swelling ground midway between the two rivers, and about $1\frac{1}{2}$ furlongs above their junction ; it is somewhat of the same description as those of Allumpoor ; it consists of one principal (but not large) pagoda with several smaller ones enclosed by one stone wall ; it stands $2\frac{1}{2}$ miles N.E. of the village of Koodelli, which gives name to the junction or Sungum. The priest resides at the village, and goes daily to perform the ceremonies at the pagoda, which is in a dirty, ruinous and very neglected state, and the place appears to be but little frequented.

Guduwal.—In the citadel of this place and close adjoining to the Rajah's house is a handsome modern pagoda built of hewn stone ; it is not very large, nor is it yet entirely finished, but it is of a neat and not inelegant design.

Poodoor is 5 miles south some little east of Guduwal ; this is said to be a very ancient town and to have been the residence of a very powerful Poligar or, as he is sometimes called, Reddi or Gowdu, having been of the Reddi caste. A wall upwards of a mile in circuit seems formerly to have enclosed the town ; its ruins are still a very conspicuous object forming a high and, as to ground-plan, nearly circular embankment ; its profile shows an exterior ditch, in many places filled up, but in others 20 feet broad and 10 or 14 feet deep ; the height of the rampart is from 10 to 20 feet, and they were of commodious breadth. Within this line is seen the ruins of a detached citadel ; its walls appear in some places to have been built of stones of enormous dimensions, and must have been of as much strength as the best masonry is capable of giving to a small place. Within this place is a small pagoda which appears to be of considerable antiquity ; there is also a similar pagoda without. Some inscriptions found at and near to these places have dates so remote as the early years of Vikrama's era ; but their matter throws no light on the history of the Poligar, whose period is probably something less remote. Poodoor was the capital of the Guduwal District till about 50 years ago, when the Raja took up his residence at Guduwal ; the town is now very small, and is the residence of ryots only. Near Poodoor, on the Guduwal road, is a handsome and spacious well, faced with excellent masonry ; the water proving bad, it has long been neglected.

Malliabad stands in lat. $16^{\circ} 9'$ and long. $77^{\circ} 25'$, and is about 4 miles south of Raichoor. Here are to be seen the massy ruins of a large fortification situated generally on the plain, but having their course partly over low heights, and terminating at the S. E. angle upon a high rocky hill. The north and east faces of the fort have a double line, and there seems to have been even a third line joining the second near its ascent of the height just mentioned, and passing thence first northerly, then easterly, with an interval seldom less than 200 yards from the second line to another height near a mile N.W. from the former, but this third line, being formed of only earth with a slight ditch before it, is not to be traced in a perfect continuity ; but the very massy materials of which the other walls are composed, although not able entirely to resist the effects of time, will make them continue evident for many ages to come ; they are built with stones of an enormous size, some of them being 12 (the

inhabitants say 16) cubits in length, with proportionate breadth and thickness, their front is partially smoothed, and their edges are made to fit the one to the other, so that they require no chunam. Its area within the second wall may be about one-third of a square mile; its figure is somewhat oblong. Several towers are to be distinguished, particularly on the small heights over which the lines pass. The ramparts are in general of a sufficiently commodious breadth. There are two exterior gates, one in the west face near to the S.W. angle, another in the middle of the north face, and there are two communications between the inner and second lines. This place is said to have been erected by the same Reddi or Gowdu who built Poodoor, already mentioned, but either he or his successor, disapproving of the place from deficiency of water, caused another fort to be built at Raichoor, on occupying which Malliabad was evacuated, and has ever since been neglected; it is now greatly overgrown with jungle and in a totally indefensible state. No buildings worth notice are to be seen, and the interior is for the most part cultivated; a few ruins, however, seem to denote there were formerly a few pagodas. The present village of Malliabad is small, and stands just without the second line of works; it is one of seven villages belonging in jaghire to a Peerzada, who has a house here. There is also a mosque in the village.

Raichoor.—The fortress of this place has been described under the third head, where it is further said that there are no buildings of that superior kind which might have been expected at a place so famous in history as this has been; Musulman buildings of a secondary rank, as musjids, durgahs and quburs, are rather numerous: several are built upon the hills, some stand on the plain in the environs of the town, others are in the fort. The Jumma Musjid in the petta is the most remarkable building in the place. Of Hindoo buildings there are none of a kind that need be particularly noticed.

Chikka Soogoor is about eight miles north of Raichoor. At this place is a Hunuman pagoda of neat and peculiar construction; there is also a musjid.

Places at which there are Pagodas.—At Dewurdoogoor, on the right bank of the Kistna, is a small and somewhat singular Hunuman pagoda. At Dimmi, about 9 miles S. E. of Raichoor, is a small pagoda with a Goperam or spire larger and more conspicuous than most others in the district.

At *Uduwi*, a small village about 21 miles S.W. from Raichoor, is an enclosure containing several pagodas, but of no other remarkable character than being somewhat larger than the other pagodas of the country, and, standing on rather high and bare ground, is conspicuous for many miles round.

About 4 furlongs N.W. of Manuwi and about 5 miles N.E. of Bhunoor is a small pagoda dedicated to Yelluma, at which there is a small annual jattrā. Upon a high rock called Dewurugutt and directly north of the pagoda is built a pillar or pedestal for supporting a lamp.

Cavital.—In the fort of this place is a small neat and well-built pagoda dedicated to Esuvuru; it contains two inscriptions of the year 1140 Salivahan era; they are in high preservation and beautifully cut in smooth black stone. Between the fort and petta is a small well-built mosque, and upon the height north of the village is a conspicuous durgah to commemorate the memory of a vullee or saint; and on the side of the hill, or near 2 furlongs west of the fort, are a couple of small excavated pagodas.

Bhunoor.—Upon the hill in the rear of this town is a celebrated durgah in commemoration of a saint; a concourse of people assemble there weekly to perform their devotions.

Wuduwutti.—About 9 miles N.E. of Cavital on the rocky height close S.W. of the town is a small pagoda, at which there is an annual jattrā.

At *Jalihal* there are two or three small but neat well-built pagodas and wells recently built.

At *Deodroog*, behind the small tank between the town and Neejampetta, there are one or two neat pagodas and wells, also a good musjid on the west face of the town.

At *Goboor* there is a somewhat large and lofty Hunuman pagoda; it is built of neatly hewn granite, and its roof supported with six neatly carved columns of smooth black stone; the roof is flat and without a spire. It is still in good order.

Jagutucull.—At this place is a pagoda dedicated to Veerabudra Swamy ; the people that chiefly assemble on the occasion are Lingaits, who have a particular veneration for the deity. It is well attended from the neighbouring villages, and the surrounding Poligars are invited to it by the Amildar of Deodroog.

On hills there are no large pagodas, but very conspicuous small ones are found on the following hills:—

Sooltanpoor.—On the right bank of the Toongabhadra and a short distance east of Allumpoor.

Wudupulli, in the Jeej pergunna and about 15 miles W. by N. from Kurnool.

Sunnakull, nearly 19 miles S. by W. of Guduwal ; this and Wudupulli are something larger than most of the others.

Boellugoodum, already mentioned as a fortified post of Guduwal.

Kullumulle, 10 miles west of Raichoor.

Ramdroog, already mentioned under the third head.

Muludukull, 3 miles S.E. from Ramdroog.

Kakurkul, 4 miles N. by W. from do.

Mosulukul, 7 miles N.W. from do.

Chintalucoontu, 7 miles W. by N. from do.

Sinwarum, 9 miles S. by W. from do.

Timmapa Gooddi, 7 miles S. by E. of Cavital.

Permanunda Goodda, 3 miles N.W. from Jalihal.

Induwagi, 15 miles S. W. of Raichoor.

At *Janikulloo*, 6 miles N.W. of Bhunoor, there is a remarkable stone pillar or lingam raised upon the summit of a rocky hill.

Bonkuldodi, 6 miles west of Jalihal, on the hill, a small but very conspicuous pagoda. None of the above are of a character deserving any particular notice. Of a still smaller description there are several others, which are not thought worth particularizing.

Guvigut, near 12 miles east by south from Cavital. On the south extremity of this hill a small natural cavity of about one-third part of the height of the hill, and at the bottom of a very perpendicular face of the rock, is fitted up so as to form a pagoda ; it is this cave or Guvi that gives name to the hill and village.

MINES, MINERALS AND MANUFACTURES.

Salt and saltpetre are the only substances obtained immediately from the earth ; the former is made very generally over the whole country, the latter is made in several places, but particularly at Raichoor itself. Cloth is the principal article of manufacture ; at almost every village those of the most common and coarse kind are made ; and at all the larger places, in addition to this common kind, women's coloured cloths of the value of five and six rupees are made in the principal towns, as Guduwal, Allumpoor, Raichoor, &c. In addition to the cloth already mentioned, fine muslins answering for pachodies and turbans, silk cloth, and at Guduwal very rich silk and cotton stuffs with gold embroidered borders, are made. These stuffs are exported to Hyderabad and various other places in the Nizam's dominions and to Punderpoor, and thence over the Mahratta country to considerable distances.

Cotton thread is produced in very great quantities ; spinning it is the usual occupation of all the women who can find leisure from other employment.

Kummuls or coarse blankets are made in very great quantities in the districts of Durroor, Jeej and the eastern parts of Raichoor, and less quantities are made in all other parts of the Circar ; about Guduwal some few of a finer kind with neatly worked borders are made.

There are many families of dyers spread over the district ; some of the materials for dyeing are cultivated, others, as the roots of trees, are found in the jungle, but the greater number are brought from beyond the Kistna, and chiefly from about Punderpoor. Thread is the chief article, but cloths and stuffs also are coloured.

ROADS, PASSES AND DEFILES.

The country is for the most part so very open that a passage across towards any particular point of the compass may be effected by a variety of different (though of course nearly contiguous) lines, so that traders and travellers deviate to

the right or left as business or circumstances invite, and it is not always that any one particular line has so decided an advantage in respect to water and supplies as to be distinctly established above others as the road between two points. And in reference to that degree of precision which contemplates the roads being laid down by bearings along them, and with a detail beyond what ordinarily appears in the map, it may be observed such an object would in so open a country be in many cases defeated, its execution rendered uncertain, and of tedious adjustment in some cases by the uncertainty of what line to adopt, in others by the relative change of the road in respect to the detail of its environs ; it will, for instance, at one season pass to the right, at another to the left of an object, as a village tank, height, &c. ; will sometimes curve to the right, sometimes to the left of a cultivated tract, over which in an advanced part of the season, when the enclosures are removed, it will have a direct course—particulars which, however unimportant in every practical view of them, would reduce the most laboured and detailed execution to that general line of road which is ordinarily marked in the map as obtained by stations ; under these circumstances the actual traverse with compass has been relinquished, and the road laid down from stations varying in the length of their intervals according to the description of road, not exceeding four furlongs on the principal roads, on which the detail of the environs has been particularly attended to.

The roads are considered of three classes ; 1st, military roads, of which there are two—one from Kurnool to Hyderabad, one from Adoni to Hyderabad. These are marked in the plan with vermilion. The 2nd class comprehends such roads as are frequented by caravans, and considered the commercial lines through the country ; while those of the 3rd class mark the lines of commercial intercourse in the country. The 2nd class roads are distinguished on the map by a dark and broad brown line ; the 3rd class are marked by narrow line of the same shade. The former have all somewhat of a meridional position.

System of Roads.—From the Toongabhudra on the south they are directed first to some principal place intermediate between the two rivers, and pass thence to the Kistna.

The Mooryconda Ghaut, situated about 3 miles below the Koodelli Sungum, is a great commercial passage of the river. Between that and the Rajghaut at Kurnool there are no greatly frequented passages of the river, that at Allumpoor is the most so, but it is seldom taken unless for the purpose of touching at Allumpoor itself, which may readily be done, as roads lead to and beyond it towards Hyderabad, meeting those from Rajghaut, on the Kistna.

Upon one of these three ghauts all the great lines of communications between Hyderabad on the north and the Kurnool and Cuddapah Districts on the south are directed ; the communications from the Adoni District with Hyderabad are directed upon Guduwal by the Rajawal and Gurlapad Ghauts of the Toongabhudra.

The communications across the Doab from the Adoni Districts are chiefly by the Naguldimni, Toongabhudra, Hurrinelli and Chikkulburvi Ghauts ; that of Naguldimni is the chief communication with Hyderabad by way of Guduwal. The Toongabhudra Ghaut is also a communication with Hyderabad by way of Raichoor, but more especially with Narainpetta, Muktal and other bazaars north of Raichoor, and beyond the Kistna. Hurrivelli with the several small ghauts about it are the communications from Bellary Districts with Narainpetta and Muktal and Hyderabad by way of the Kala Chabootra or Kadloor Ghauts ; they are also, together with the Chikkulburvi and its neighbouring ghauts, the communications between the Adoni and Bellary Districts on the south with those of Deodroog and Shorapoor, and beyond them those of Calburga and Calliani.

The Arrivelli and Chaggi Ghauts are the frequented passes from the Adoni Districts to Cavital, Moosky Moodgul, and other central places of the Doab.

General description of the country as to traverse.—On the side of the Toongabhudra the country may be very generally traversed, as it is open and nearly clear of all obstacles ; but as the soil is for the most part black it is liable to be boggy in the wet, and to be full of fissures in the dry, which makes it some degree necessary to keep to the beaten roads, but these are so numerous, radiating in all

directions from every village, as but little to modify the general nature of the traverse. The northern portion of the Doab is not so entirely free of impediments.

1st, the passage of the Kistna river between the two military ghauts of Pangtoor on the east and Dewar Soogoor on the west is less generally practicable than in many other parts, so much so that it is not conveniently crossed at other than the few established ghauts.

2nd.—About Anantapoor the country is rocky.

3rd.—The space lying between the Chentucoyli Ghaut, Durroor, Beejawarum, Gutt, Shingunuwiddi and Rampoor is so mountainous, hilly and jungly as to be traversed only by particular roads, which are not numerous, and are for the most part small, being incommoded with jungle, and in many parts stony and rugged, the soil being rocky.

4th.—The space included between Heere Gotey (on the Kistna at the western boundary of the Circar), Jalihal, Deodroog, Mosulukul, Randroog, Sirruwarum, Cavital, and thence along the western boundary to the Kistna river is partly mountainous, partly hilly and partly jungly, so that the traverse is confined to particular lines, of which the principal are one from Sirruwarum by Arukeyri to Deodroog, a second from Cavital by Hosseinpoor by Heere to Gullug, Moondurji and Jalihal, and a third from Cavital to Arukeyri and Keradigerri by Wadawutti; the first is stony and rugged between Arukeyri and Deodroog, the latter is in some places rocky, and north of Hosseinpoor passes over a ridge of table height. The largest tract which continues open all the way from one river to the other is that between Raichoor and Sirruwarum. The general character of the roads is good; the greatest objection to them is their liability to be boggy in the rains, on account of the nature of the soil, which is black, but in the dry season the roads are in general excellent, even for wheel carriages; the banks of the dry nullahs are frequently rugged, but the soft earth of which they are composed enables them to be very readily rectified.

The detail of the principal lines is reserved for the 18th head, which may be referred to.

Soil, Productions and Modes of Husbandry.

Soil is of two kinds, red and black. The proportions in which they prevail and their distributions over the face of the country have been mentioned under the 7th division of this memoir as appertaining to geological inquiry.

Productions.—The chief productions are millet, pulse and cotton. On the red soil red juwari and bajura are sown in nearly equal quantities, and are the chief objects of cultivation; intermixed with these, cooltee, moong, mutt and toor are sown, also a less intermixture of teel, bullee and lobey. Yerrundi is found sometimes separate, but chiefly intermixed with other grains.

The principal productions of the black soil are bajura, red and white juwari, and cotton; with these some of the before-mentioned grains are intermixed; with cotton kungenni is chiefly found; it is sown in double rows between every two rows of cotton seed. Chenna and wheat are sown separately, but not in very great quantities.

The above enumeration comprises all the proper productions of the country, but there is also a partial and very limited production of paddy, chiefly at Beechal on the Toongabhudra, but also behind several of the larger kind of tanks. The districts of Durroor, Jeej, the eastern and southern parts of Raichoor, and among the hills of Gullug and Moondurji are the places where the most is grown; along the borders of some of the cotton fields saffron and other dyes are in a few instances to be found.

Of the larger description of garden articles, as cocoanuts, soopari (betel), it is but at three or four villages they are to be found. Allumpoor and Beechal, on the Toongabhudra, and the Rajah's garden at Marchair, are the chief places, at each of which a small quantity of ginger and buch are produced.

Of the smaller kind of garden articles, there are chillies, tobacco, wyngen (or brinjals), benda, cucumbers, onions, and various other kinds included in the

general name 'turkari.' These, except chillies and tobacco, which are rather plentiful, are to be found but in very small quantities, and only during the most favourable part of the season, when they are brought for sale at the weekly markets, and in particular to those of the larger kind, as Raichoor, Guduwal, &c.

Disposal of the Productions of the Soil.—Cotton is the only article cultivated expressly for exportation; all the others are intended, entirely or principally, for home consumption. There is a most inconsiderable interchange of other articles. From the Guduwal Districts, for instance, where there is a large proportion of a red soil, bajura and juwari are sent to the Allumpoor and Raichoor Districts, where the soil is chiefly black, and where, therefore, the cultivation of cotton is apt to interfere with the sufficiency of grain for consumption; in the same way cooltee and other pulse of the red is exchanged for chenna, &c., of the black soil. But very little rice is consumed, but sufficient for the consumption is not produced; the import is chiefly from Seerugoopta and Rampoor (both villages on the Toongabhadra); in Guduwal, however, there is a small excess, which is sent across the Kistna.

Of the cotton a portion is worked into thread and afterwards into cloth; but the quantity used in the manufactures of the Doab is very trifling—nearly the whole is exported either in wool or thread to Wallajapet.

Mode of Husbandry.—The mode of husbandry in this part possesses nothing peculiar; it is much the same as prevails in the districts of Bellary and Adoni except that there is not the same degree of industry or quantity of good stock.

In respect of general cultivation, the year may be considered as commencing in April, during which month and May the whole of the red soil and a portion of the black is ploughed at such intervals as the fall of showers renders the ground fit. The black soil is not ploughed annually; when in a good state it requires no other preparation than just scraping the surface with the coonti or knife, but in the course of a few seasons, and especially if the ground lies fallow, a strong reedy kind of grass rises in clumps over the surface; its roots are exceedingly tough and strike deep into the soil, and are said to be so tenacious as to renovate from the smallest part remaining in the soil. Where, therefore, the grass has spread to a degree that proves a serious interruption to the ordinary instruments of agriculture, or that it chokes the soil, a very heavy process is necessary to restore it, and this process is continued one, two, or even three seasons, according to the previous state of the soil, but one season is sufficient in all ordinary cases. The field has two ploughings, the one transverse to the other; this is done with the great plough or mudaka drawn by from 8 to 16 oxen (generally 12), and takes place soon after the cessation of the rains. After the two ploughings the heera coonta, or long broad knife of the largest kind, is drawn generally by 12 oxen, the object of which is to break the clods and tear out the roots of the grass; this operation is repeated with lesser instruments of the same kind, and the great team is broken into smaller ones—at first into sixes, and then into fours, next into twos—the operation being continued until the ground is clear, the clods broken and the surface smooth.

These operations require from two or four months previous to sowing the next season. The surface requires to be raised with the coonta, after which follows the cooriga or drill, having three bamboo tubes fastened to a wooden cup. Such grains as are to be sown intermixed with the principal one are dropped through a separate bamboo, guided generally by a woman; it is tied to the cooriga by a cord that permits it to remain a convenient distance in the rear. Behind the cooriga follows the small coonta, to cover the seed and flatten the surface.

When the sprouts become about a span in height, the yedda coonta is drawn along the intervals between the lines of sprouts, to loosen the earth and clear away the weeds; this operation is repeated two or three times before the corn begins to ear.

White juwari or coolti is usually sown as a first crop after a preparation of the soil such as has been mentioned, after which cotton or whatever else is preferred, more in reference to the market than to the ground.

All the red soil requires a thorough ploughing every year it is cultivated, and must lie fallow during one or two years after a certain number of crops have been produced, the number depending on the nature of the soil as to richness. The

poorest soils usually cultivated are those of a sandy kind, of which there is very little, but most about Marchairla and the country south of Gutt. On these soils the fields are said to be cultivated during only two or three seasons, and then require to be left waste for an equal period. The labour on such soils is light; two ploughings, one transversely to the other, and a third at the time of sowing, with but two or four oxen to the plough, is all the preparation that is required. On these soils coolti or yerrundi is the first crop and is sown in August. The next year kodara and bajura, which are sown in June. Coolti and kodra are sown without any intermixture of other seed; but with bajura, moong, mettukeyloo, lobey and teel are intermixed. When yerrunda is sown as a first crop toor and lobey are intermixed.

The ploughing that takes place in April and May is chiefly on the red and sandy portion of the soil, or such as will sufficiently resist the rain. In May and June ploughing and manuring the lands is continued, but in the course of June much bajura and red juwari is sown on the red sandy and toughest of the black soil, which latter description of soil is in the Allumpoor District much more generally sown at this time than in any other district. During July the sowing on the red soil continues, and towards the end of the month the coonti is drawn in the forward crop to cut the weeds and loosen the soil. From the middle of July to the end of August bajura and red juwari are sown on the black soil, with no other preparation of the latter than just scraping its surface. During August the first crop of wet cultivation is made behind such tanks where it is practicable if the supply of water promises to be sufficient. Also cortu wudloo, or rice, sown with the drill on a dry soil, keeping the surface open and clear of weeds, is also much attended to and occupies much time. In September garden articles are sown, as vyngen, chillies, benda, cucumbers, carrots, onions, sweet potatoes, radishes, pumpkins, maize and tobacco, and a variety but not great quantity of greens; towards the close of the month cotton is sown. With cotton it is very common to intermix kungoni by a double row between every two rows of cotton, and sometimes white [? juwari] in lieu of kungoni coolti is sown.

In the early part of October white juwari is sown; the sowing of cotton continues through the whole month; towards the close of the month red juwari and bajura, sown on the lightest and driest soils, is ready for cutting; garden articles, but in a rather premature state, are brought to market, and continue to be so, with increased quantities, till the end of November or middle of December, but begin to fail towards the close of the year.

The latest sowing of cotton and white juwari terminates in the early part of November, during the whole of which month the cutting of the red juwari and bajura continues. Also the various kinds of dal or pulse, as moong, toor, lobey, mutt, bullee, &c. In the early part of December the harvest of the first crop finally closes; beating and housing the corn and stacking the fodder afford ample employment to the husbandmen.

A continuation of the same, with turning the stubble, forms the chief occupation of January, towards the close of which, but more particularly in February, the white juwari is cut. In March the cotton is picked.

In some few places there is an exceedingly limited second crop of paddy, a little maize and even some sugarcane is cultivated, but these are of a much too trifling extent to be considered in only a general view of the cultivation of the country.

Land is estimated on the basis of the quantity of seed it is fit to receive; thus a soliga pyle, hookla or candy of land is heard of, signifying as much land of its own, peculiar kind and quality of soil as is duly competent to receive a soliga, pyle hookla, &c.; measure of seed in the same way is heard of, a coriga or drill of land being as much land as may conveniently be sown in a day with one drill. Land thus estimated can be but little regular in superficial extent; 500 feet square is a conjectural average area of one coriga of land; its rent as paid to the Sirkar is estimated to be 30 rupees for garden land. The surusor first quality of field near the village, and eligible to the expense of manuring, rupees 12½, other fields 10, 8 and 6 Gudwal rupees or ¼ pagoda the cooriga. A field of 8 coorigas is called a chikku = candy, hookla or tooma dashair; twice that quantity eckla; three times moogala, &c.

The return fold on a soil of mean value, or rupees 10 the cooriga, is estimated at

120. The produce is considered as composed of three shares, of which one belongs to the Sirkar as rent, one to the proprietor as his fees and for payment of his cattle and instruments, and one-third to the cultivator for his labour and profit.

The following is a table of grain measures :—

2 Guddanas	1 Uddana	4 Pyles	1 Bulla or Coonchadoo
2 Uddanas	1 Soliga	4 Coonchadoos	1 Hoekla, Toom or Koodoom
4 Soligas	1 Pyle or Maun	20 Tooms	1 Kundy or Potadoo

The soliga is equal to 2 pukka seers, or a cube capacity given by 48 rupees weight of mixed grain, as juwari, paddy, wheat, bajuri, &c.

Population—Inhabitants.

No attempt has been made to obtain a census of the population, as it would have been as impolitic as it must have proved ineffectual. It is therefore only in general terms that this subject can be treated of. The districts of Allumpoor, Jeej and Durroor seem to have nearly competent population; those of Beyrudoni, Mosulukul, and Jalihal seem to have a low population; those of Raichoor, Bhunoor and Cavital are in some parts very thinly inhabited, and even in the rest may be considered below a medium.

The great body of the middle ranks of inhabitants are Lingaits; nearly the whole of the internal and external trade of the district is conducted by people of this caste; they are an industrious and inoffensive people, and many of them of much respectability; agriculture and commerce are their great objects. Literature is but little known and not at all cultivated amongst them. In the Guduwal Districts more especially, but also in Allumpoor, and in a less degree in Raichoor, some of the Putwari and ryots are of the Coonbie Reddy or farmer tribe. That extensive portion of the population that forms the step between the middle and the lowest class, or between the farmer and the slave, is in this country made up of the Beyder caste; they are numerous over the whole country, but less so in the eastern and southern than in the western and northern parts; amongst the Beyders there are but few Putwari or proprietors; a great number, however, rent lands of the Putwari; some of them cultivate with their own stock, but more frequently their means are less adequate, and they require to borrow stock and instruments on rent; many of them are only labourers. Nearly all the peons and militia of the districts are of this tribe.

The Beyder is of the hunting tribe; he usually ranks below a Sudra, and is of course impure, but there is everywhere this distinction between the Beyder and Dher, the former is permitted to reside within the village and the other is not; but in this country, owing to the high political rank and consequent influence which several Beyders have attained (as for instance the Raja of Shorapoor, the Poligars of Arukevri, Kecedigerri and Gullug, Goodoogoonta, Kunacgerri, &c., all of whom are Beyders) their pretensions are high and indulgently treated. The Beyders are a hardy race and somewhat more athletic than most other tribes; they are powerful and of active despatch in such labour as they enter on, but they are of very irregular habits, addicted to drink, and indisposed to the routine of labour if they can avoid it, but active and intelligent in enterprise, and but little careful of the moral character of the object, it being sufficient that it promises either interest or advantage. They are therefore well calculated to be the military retainers of their own chiefs, whose pretensions to russions or fees, and love of turbulence, keep open some active scene of either an offensive or defensive nature.

The Dhers are not thought to be sufficiently numerous; the treatment they may have experienced has probably caused the deficiency complained of; they are here the same miserable and wretched creatures as elsewhere.

A few Musalman families are found in many of the villages, but particularly at the towns, as at Allumpoor, Pangtoor, Raichoor, Cavital, Bhunoor and Deodroog and various other places. Except at Allumpoor as a town, Pangtoor and Oopair as jaghirs, there are few or no Mussalmans of opulence; they are chiefly the descendants of military people who came into the district in the service of the Beejapoor State or of the Mogul, and who obtained a livelihood from some of the family, serving as peons or sepoys in or out of the district wherever they can get employ.

Telinga and Canarese Brahmin families may be about as numerous as those of Mussalman, or perhaps rather more so; many of these are landed proprietors whose estates are held on various degrees of reduced rent under the character of Enam, Oomuli, &c.; but the principle of dividing estates between all the family has operated in the course of descent to the reduction of all, so that they are in but few instances considered a competent support, but only an assistance to the families to whom they belong; the most able members of each seek employ as managers of departments of revenue, as writers, agents, accountants, &c., under their own Government or within their own district if possible, otherwise at whatever distance they can get employ.

In this manner several ancient families at Raichoor, Blunoor and other places maintain a sort of skeleton house, or maintain an entire family at their native place, always regarded as their proper and ultimate home, should their means admit or their health oblige them to retire from service.

The population is made up chiefly of the castes above mentioned, but a due proportion of most others will be found, as the dhungar or shepherd (which is indeed rather numerous), gowlee or cowherd, carpenter, smith, weaver, dyer, with the various other trades and occupations that are required, without any excess or deficiency that has appeared remarkable.

The Telinga language prevails at and east of Guduwall. The Canarese prevails at and west of Raichoor. There is a considerable intermixture of both languages at both places, but the prevalence is as above stated, so that in defining the line between the two the districts of Jeej and Durroor may be considered the western boundary of the Telinga, and Raichoor the eastern boundary of the Canarese language.

Most of the Sirkar servants, many of the traders and a few of the ryots understand the Hindoostani language, and some few people will be found who understand Mahratta.

The Lingaits, as already observed, form the bulk of the agricultural and commercial part of the community; they are an industrious and generally well-disposed people. Many of them evince a condition of perfect competency, but none make a show of any higher scale of riches; some, but only a few, may perhaps have it in their power, and that few may not think it polite to do so. Competent circumstances seem more to attach to the commercial than to the agricultural class; the latter appear generally in but indifferent circumstances. The Beyders are generally poor, but many amongst them are rich enough to maintain a stock competent to their agriculture. They are a laborious, hardy race, but possess neither the same steady industry nor capacity for management as the Lingaits. But few others than Naiques and Poligars are Putwaries or proprietors of land, but many of the Beyders rent ground of this description of people, or hold some little on condition of military service; they are very apt to be turbulent, particularly the higher classes of them, as Naiques and Poligars, with the whole train of their personal or military retainers, which together with the militia of the district and the armed retainers of the several Jaghirdars and Meerasdars form a large aggregate body. The peons and the more regular military bodies of the several Governments of the districts are of a similar character, and from the open and concealed irregularities of these people, and the unsteady and arbitrary conduct of the Government, the quiet and interest of the peaceable inhabitants is much interfered with.

As to the government of the country, divided out amongst Zemindars, Jaghirdars and Meerasdars of various denominations, they have all but one object—that of obtaining the greatest possible amount of revenue; and the impolitic eagerness with which this object is pursued leads to feuds, to oppressions and evils of all kinds, tending to defeat its own desires. The Allumpoor and Guduwall districts seem better managed than the others. Those of the Raichoor Zemindars are the worst managed.

The condition of the Brahmins, of the Mussalmans and of the Dhers has already been mentioned.

There is nowhere an appearance of opulence or of much general comfort in the Raichoor districts; no people of rank or character, either in literature, riches or influence, are seen to reside there.

Character and condition of the inhabitants.

GEOGRAPHICAL MEMOIR OF THE MOODGUL CIRCAR.

The Moodgul Circar lies between the eastern meridians of $75^{\circ} 52'$ and $77^{\circ} 5'$, and between the northern parallels of $15^{\circ} 8' 20''$ and $16^{\circ} 21'$. It is situated between the Toongabhadra and Kistna; the former, bounding it on the S. E. and S., divides it from the districts of Bellary and Harponhulli; the latter river, bounding it towards the north, divides it from the districts of Sugur and Tallikotta; towards the east it is bounded by the Circar of Raichoor, towards the west by Gudduck and the districts of Savanoor and by the Toragal Circar.

Part of the Circar not falling within the limits of the Nizam's authority, the entire district has not been surveyed. It may, however, be conjectured to have an average length of about 55 miles from north to south, and about 65 miles from S. W. to N. E. Its figure is so greatly irregular that these dimensions can be applied in not at all a strict sense, nor can its figure be likened to any of a geometrical denomination. The circuit of the portion of the district which appertains to the Nizam is 453 miles, its area 3,420 square miles.

About one-tenth of the surface is mountainous or hilly, the remainder chiefly high swells, but which are of such breadth and extent as to render the surface in a considerable degree level. Considering the area as consisting of 100 parts, the following may be its distribution:—

At present under cultivation	40
In a waste state but capable of cultivation	35
In capable of cultivation with adequate advantage, including mountainous, hilly and sterile tracts	25
	<hr/> 100 <hr/>

Divisions and their Boundaries.

The following table exhibits the present divisions of the districts:—

Nos.	Names.	Tenures on which they are held.	By whom held.	REMARKS.
1	Rowdigoonda	Zemindari	Raichoor Raja	Managed by an Amildar of the Raichoor Raja.
2	Sindunoor			
3	Moodgul	Chiefly Jaghire	Inteeaz Dowla	Managed chiefly by the Amildar of Inteeaz Dowla.
4	Mooski			
5	Mederyen Coata	Polliam	Goodoogoonta Rajah	Managed by the Raja.
6	Kunaigerri	Tunkwah Jaghire ...	Mahomed Saib Meean	Under the management of an Ameen, Shumsheer Khan,
7	Gungawutti			
8	Tawurugerri			
9	Kooshtugi			
10	Yelboorga	Jaghire	Mooneran Moolk	Held as a Zemindari by the Raichoor Raja.
11	Copal			

The present certainly differs from the ancient divisions, although from the very great difference of the authorities upon the subject it is hardly possible to ascertain

with certainty what the divisions were. The following table exhibits all that is known on the subject of its ancient divisions :—

Table of ancient divisions of Moodgul from various authorities.

Nos.	Resident Authorities.	Mahratta Authorities according to Waring.	Persian Authorities according to the Surveyor General.
1	Moodgul.....	Moodgul.....	Meydgal.
2	Sindunoor	Seedpoor	Siddispoor.
3	Rowdicoonda	Ruveegodah	Oodkondah.
4	Copul	Kopul	Coomul.
5	Yelboorga	Yeldroog	Emleeka.
6	Mederyen Coata		
7	Kunair Muddugoo	Kunermuttoo	Keermuddoo.
8	Kooshtugi	Kooshtegee	Gooski.
9	Gungawutti	Gungawuttee	Gungavuti.
10	Mungaloor		Keeloor.
11	Kukunoor.....		Koaknoor.
12	Nowli		
13	Tawurangerri	Taweregarah	Madenkeira.
		Ilmul	Anelkul.
		Koomtoos.	
		Bengood.	
		Kunukgee	Gungkaira.

In the above list those names which are written in the same line are supposed to mean the same place, which supposition is founded on the similarity of the names in sound or writing, supposing in the latter case, what is very common, the points properly used in writing to have been omitted in the manuscript, and that one or two letters have been indistinctly written, which in Persian in particular they are liable to be.

The first difference that appears in the two lists, one of present, the other of former divisions according to resident authorities, is No. 7 of the latter or Kunair Muddugoo, which is said to be the ancient name of Kunagerri, the 6th in the table of "present divisions," and that the village of Kunair Muddugoo was the kusba, until the Poligar, having built Kunagerri and made it his residence, caused the change under notice by which the name of Kunagerri was substituted for that of Kunair Muddugoo, now but a summut. The next difference observable is the names of Mungaloor, Kookunoor and Nowli in the ancient list; at present these are considered summuts of the Gungawutti talook. They are almost too small to have been with propriety considered each as a separate pergunna, but ancient inscriptions confirm Kookunoor to have been so considered; the present arrangements, making them summuts of the Gungawatti pergunna, from which (except Nowli) they are locally detached, cannot be considered an improvement of the former order.

Mooski, the 4th division according to present arrangement, is properly (that is, in respect of size and locality) but a division of Moodgul, but being alienated, it is said, on jaghire tenure when the first register of divisions was made, it was not at all enumerated, and now that it is so forms a separate division.

As Kunukgee according to the Mahratta authorities, and Gungkaira according to the Persian, may be supposed to mean Kunagerri (notwithstanding the district is properly included under the head Kunermuttoo and Keermuddoo), it remains only to account for Ilmul, Koomtoos and Bengood. Ilmul is supposed to mean Illukul, which according to some authorities is one of the 18 summuts of the Moodgul pergunna, but at present it is annexed to the Badamy District. As to Koomtoos, it should most probably be Koata or Coata, to which the name of Mederyen Coata is usually abbreviated.

Bengood in Mahratta writing is said to be reconcileable to Honugoond, which according to some authorities is the name of one of the 18 summuts of the Moodgul pergunna, but, like Illukul, has become annexed to Badamy.

What is remarkable in the list of ancient divisions is, that the three authorities coincide in assigning 13 divisions, though there is a discrepancy in the detail; the list given on the authority of the residents in the districts has been obtained from the best authorities, as the Desh Coolkurnees, &c. Statements obtained from different people of this description have been compared and found to agree.

The line of eastern frontier, or that dividing Moodgul from Raichoor, will be found described in the memoir of the Raichoor Circar; the S. E. and southern frontier is the best understood, and most definite of all others, passing entirely along the Toongabhadra.

The western frontier is not entirely either the exterior line of the Circar or the exterior line of the Nizam's dominions; for Gudjuntergurrh and many of its dependencies belong properly to the pergunna of Yelboorga, and the districts of Hoonugoond, Illukul and Shingunugootee, belonging to the Mahrattas, are divisions of the Moodgul pergunna, and the pergunna of Neeluwagul, appertaining to the Toregul Circar, forms a tongue of country beyond the exterior line of the Moodgul Circar.

On the line of the Kistna the boundary is extremely imperfectly known, owing to the impracticability of obtaining permission to go on the island of Jaldroog, belonging to the jaghire of Inteeaz Dowla.

CAPITALS, FORTS AND MARKET-PLACES.

Moodgul.—This is the ancient capital of the Circar. Its geographical position is $16^{\circ} 0' 34''$ lat. and $76^{\circ} 29' 47''$ long. It is situated in a hollow between large broad swells, and stands on the north skirt of several large groups of rocks; it consists of a fortress and five exterior pettahs. The fort is $4\frac{1}{2}$ furlongs long from north to south, and $3\frac{1}{2}$ from east to west. The northern part, comprising an area of near 3 furlongs square, is situated on the plain; the southern line of rocks ascends and embraces a short but the highest ridge of a rocky group. The works consist of one double line; the profile showing an exterior ditch from two to three hundred feet wide; in the plain, where it is generally filled with water, it is said to be deep in most places, but is liable to become dry in others; the ditch is continued over the height, but is of course dry there. The wall consists of a rampart and faussebraye, both furnished with strong parapets; the materials are stone. As in Raichoor, so here, the traces of the old fort are to be seen under modern improvements. The towers are numerous, generally spacious, and almost all exceedingly strongly built; it is in the faussebraye chiefly where the old works are recognized; the modern part of these works consists chiefly of an addition to the height of the parapet by placing massy stones along the top of the old one, leaving small intervals between the stones for loopholes. In the curtain also much of the old work may be traced, and the northern and western, that is, the interior faces of the hill fort are almost entirely of this work, and are nearly in ruins; the outer works are generally in a tolerably good state of repair. The rock is near a hundred yards high from the northern plain, but the ground amongst the rocks on the south is so much elevated as to reduce the relative height of the rock near two-thirds. A handsome pleasure building surmounts the highest top of the rock, and a large battery is placed upon another summit. The Killadar and garrison, the Amildar and Kutcherri, and some Brahmins and Lingaits occupy the lower fort, in which there is said to be a handsome mahal. There are two gates—one on the north, which, however, is closed, and one on the east side, which is of the usual complicated kind. Small pieces of ordnance are mounted upon several of the towers; some are in the upper fort, and one large piece is mounted on the highest battery. There is a more considerable manufactory of powder here than is to be found in most other places, and there is said to be a very large store of it in the grand magazine in the fort. The garrison consists of a killadar and a body of regular peons, the immediate servants of the Jaghiredar, Inteeaz Dowla, and there is a large auxiliary garrison of Beyder peons or militia under the hereditary naiques of the district, who live at their own houses, attending only when called upon, and receiving for this service lands on Omuli tenure.

The original fort is said to have been built in the same era [?] with that of Raichoor and Adoni by one Moondupa, a Reddi, and Naique or Poligar of the

district ; its improvement was commenced upon and considerably advanced by the Beejanuggur kings, who had not, however, completed the improvements when finally wrested from them by the Beejapoor State, which in its turn furthered the improvements, but still did not complete them, when it fell in the possession of Aurungzebe. He is said to have parcelled out the towers to his favourite officers, and to have called each bastion after the name of the officer to whose care its direction or completion was confided. Its present state is said to be little different from that in which it was left by Aurungzebe.

Besides the petta enclosed within the lower fort, there are five exterior pettahs :—*Gosulpetta*, situated close to the east face of the fort and immediately south of the gate ; this is chiefly inhabited by Brahmmins, and is enclosed by a wall on all sides except towards the fort. *Mastipetta*, which is the largest of all, is situated about 2 furlongs from the east face of the fort ; it is inhabited by Lingaits, weavers and Beyders, and contains a small bazar ; it is enclosed by a wall of a pentagonal shape with a gate at the south angle and one on each of the other three faces. The wall is possessed of no military strength beyond a competency for checking a loose and hasty attack of horse ; the W. pettah is about 3 furlongs from east to west, and nearly the same from north to south.

Hossipetta is a small petta lying on the northern face and N. W. angle of Mastipetta.

Hullapetta is the original petta of Moodgul. A weekly market is held in it, and there is a well-supplied bazar permanently established there ; it contains one or two rather large buildings now falling to decay ; it is surrounded by a wall which is in total ruins in many parts ; the petta seems formerly to have been divided into two parts lying south-east and north-west of each other ; the gate and part of the wall dividing the pettah is yet to be traced by its ruins.

Meygulpetta lies on the north-west side of the fort ; in size it is next to Mastipetta ; it is inhabited by Lingaits and Beyders, chiefly cultivators. It has a weekly market, and, like each of the other pettahs, has one or two small shops.*

The very great mismanagement of the late Amildar, which ended in his seizure, insulting treatment and confinement, has operated very greatly to the prejudice of the town and Moodgul. Gosulpetta was almost entirely deserted, and all the others partially so ; under the better order that at present prevails there seems a disposition for a partial return of the refugees.

Chikka Yerrulehal, 5 miles west by south of Moodgul, is a small well-built gurhee, and has but few houses.

Kurridikul is about 11 miles west by east of Moodgul ; it is the kusba of a summit, and stands pleasantly situated at the western extremity of the bank of a large tank or lake ; it consists of a walled town with an exterior petta upon the north face ; the wall is rather high, and was one of a better kind than the walls in general are ; it has two gateways, of which that on the north being burnt by Dhundia in his plundering incursion has since been closed ; the other gate is on the eastern face and opens upon the bank of the tank. It was at one time the capital of a district comprising 300 villages, as appears from several inscriptions of the first and other early years of the era of Vikrama, at which time it is styled the ancient and fair town of Hurridikul ; the praises of its environs, in particular its tank and its garden, are detailed in a hyperbolic strain.

Bellumuroyengoodda.—This is a dependency of Kurridikul, from which it is distant about a mile in a north-westerly direction ; it is situated at the north-east foot of a fortified rocky height of an elevation of about 120 yards ; the town and fortification are now in entire ruins, the former does not possess a single inhabitant ; it is said to be named after a famous monarch of Calliani, who, pleased with the spot and fond of recreating himself on the height, caused it to be fortified and the village to be enclosed by a wall. These works seem to have been of competent strength against the arms used at the time it was built, but are not what would be

* That Moodgul is an ancient town and seat of local but not supreme government appears certain from several inscriptions, particularly one bearing date in the sixth year of Yaduwaryen's reign, supposed to correspond with the year of Salivahan 1053.

thought strong in the present day. The sites of numerous buildings are still to be seen, both upon the top and on the side of the hill, within and upon the works.

Lingasogoor is situated on the great road from Moodgul to Goodoogoonta, about $9\frac{1}{2}$ miles from the former and $13\frac{1}{2}$ from the latter. It is the kusba of a small summit of the Moodgul pergunna; it consists of a small fort and large exterior pettah; a petty Amildar and a garrison of Beyder militia peons and a few sepoy of the Raichoor Rajah (to whose zemindari the place belongs) reside in the fort, as do also a few Lingaits; the exterior petta is occupied by farmers and labourers of the Lingait and Beyder castes, also by weavers and a few dyers; it is supposed to contain a total of 500 or 600 houses; its lands, particularly towards the south-east, are very extensive; an abundant supply of good water in wells and in the nullah seems to be the principal inducement to so large a settlement on this spot.

Honhulli is about $6\frac{1}{2}$ miles south-west of Goodoogoonta, and is situated upon one branch of the communication between Goodoogoonta and Moodgul; it is a strong gurhee belonging to the Shorapoor Rajah, who maintains a competent garrison in it; it is built of hewn stone, is a square of about 180 yards, has a bastion on each angle, and another on each face, also a large cavalier in the centre; the gateway is on the north face, and its materials are cemented with chunam; it is surrounded by a dry ditch of about 40 feet broad. Swivels seem to be mounted on each tower; it has but lately been built, is therefore in good repair, and the nature of its materials are favourable to its continuing so.

Juldroog stands in lat. $16^{\circ} 15' 13''$ and long. $76^{\circ} 28' 1''$, about $16\frac{1}{2}$ miles north a little west of Moodgul; it is a fortified rock situated on the western point of a large island in the Kistna river, whence it is sometimes called Devigerri. The banks of the Kistna in this part are exceedingly hilly and rocky, and the island of Juldroog partakes in some degree of this character. The channel between the island and the right bank of the river is narrow, but is said to be deep and very rocky; the channel between the island and the left bank is much wider, but said to be equally rocky. The rock upon which the droog is built has not a greater elevation than 100 yards above the level of the river.

The place was no doubt originally chosen on account of its singularly defensible and retired situation, being insulated by deep and difficult channels everywhere, environed by rocks and jungles which cannot be traversed, but by particular paths that are easily defended. On the top of the rock is a small square enclosure, in which is a lofty tower crowning the summit; a range of works encloses the rock at its foot, which is washed by the Kistna on the S. W. and N. W. sides; intermediate between this lower and the former upper work are numerous other works seemingly disposed on two lines, so that the works on the whole appear to lie in four lines, one above another, except towards the N. W. No access to the fort or even to the island was allowed, so that a more particular account of the disposition of the works is impracticable; they are built of rough-hewn stone, and are of great reputation as to former strength, but are now falling to ruins. It seems at one time to have been the stronghold, if not capital, of the Moodgul district, as one of the Yeduwunuryen dynasty is said in an inscription of which the date is 1140 of the Salivahan era to be then on the throne of Dewagerri; a few peons are kept on the island as a sort of garrison to the place, and have in compensation for their services a small quantity of lands upon the island.

Anihosoor is situated about 7 miles south a little west of Juldroog; it is the kusba of a small jaghire belonging to a Peerzada, and contains upwards of 200 houses. It consists of a gurhee and pettah; the gurhee is of a square figure, strongly built, and maintained in good repair; it is occupied by the Jaghiredar and the body of his personal and military retainers and peons; the petta is of a middle size and lies on the east and south faces of the fort.

Eechunulhal, situated about $5\frac{1}{2}$ miles S. by E. of Juldroog, contains about 150 houses; it is somewhat larger than the neighbouring villages, but like *Nirulkerri*, $2\frac{1}{2}$ south, and *Horlubhawi*, $2\frac{1}{2}$ miles north a little west of Eechunulhal, has a square gurhee, surrounded by a glacis and dry ditch. *Bul-kawadi*, 13 miles N. W. of Moodgul, and *Goorckhoord*, 14 miles N. by W. of Moodgul,

Villages of a large class or in any other respect remarkable.

have each about 100 houses, and as well as the neighbouring village of *Toandihal*, also *Komunoor*, about 11 miles N. W. of Moodgul, which have each about 50 houses, have a small square gurhee surrounded by a dry ditch. *Goodihal*, near 4 miles N. E. of Moodgul, is a strong gurhee in good repair; it belongs in jaghire to a Peerzada, who resides there; it is surrounded by a ditch, and has a complicated gateway on the N. face. *Multoor*, about 4 miles N. E. by E. of Moodgul, is a pretty large and populous village enclosed by walls, in pretty good repair, having a tower at each angle and a large one in the centre. *Koni-Keyloor* and *Mutti-Keyloor*, lying about $2\frac{1}{4}$ miles N. E. of Multoor, and nearly midway between it and Santa-Keyloor, are villages of a similar description. *Chittapoor*, about 13 miles N. W. by W. of Moodgul, situated upon the right bank of the Kistna river, is a mean and almost ruined village, but may be thought interesting, being, it is said, the place where Ram Rayaloo lost his life, and the Beejanuggur dynasty their kingdom. The Musalman armies are said to have appeared united at Sultanpoor, on the opposite bank, with the view of drawing off Ram Raj from the formidable defences with which he occupied the favourable passes of the river higher up about Racushgi and Tungudihal, in which having succeeded they regained the passes during the night, crossed the river unmolested, and next day fought and utterly routed the army of the Ram Raj near this place.

Mederyen Coata is the kusba of the pergunna of the same name; it is about 20 miles N. E. of Moodgul and about 13 miles N. W. of Cavital; it has been a place of some consideration, but is now in no respect so above other villages of a large or middle class. The fort is near 2 furlongs square, and stands on the declivity of a slope sufficiently steep to make it an injudicious site for a military work; it is built of stone, seems of pretty good profile and has a great number of circular towers; it is now falling to ruin; there are but few houses within the fort, the greater number being without on the N. face and at the N. E. angle.

Goodoogoonta stands in lat. $16^{\circ} 17' 9''$ and long. $76^{\circ} 41' 18''$, near 4 miles S. by E. of the Kukeyri Ghaut of the Kistna, and about 23 miles N. E. by N. from Moodgul. It is the present capital of the Mederyen Coata pergunna, and the residence of the Rajah or Poligar of the district; it has an irregular oblong enclosure of about 4 furlongs in length from north to south and near 3 in breadth; it has a low round height near the southern extremity of the western face, which has been fortified so as to form a sort of citadel to the town. The wall surrounding the town is high and generally in pretty good repair, but is exceedingly weak; it has one gate in each face, and one main street leading through the town from the south to the north gate. The Rajah's house occupies one side of a small open square in a retired part of the town; it is not remarkable either for its size or elegance, but is conspicuously superior to all the other houses. The fortifications on the height were destroyed about 10 years ago by the Shorapoor Rajah, and they have never since been effectually repaired; they are now a mere heap of ruins. The population of the place consists of the Rajah and his retinue, a very large body of Beyder militia, peons and their families, the Cutcherri establishment, weavers, dyers, Lingaits both in commercial and agricultural occupation. There is a small but well-supplied bazar, and a few soucars reside; a weekly market.

Gowdoor is about $3\frac{1}{2}$ miles E. by S. of Goodoogoonta; it belongs to a brother of the Goodoogoonta Rajah, who resides there; it has a gurhee and outer pettah; the gurhee is about 150 yards square, seems to be strongly built and is in good repair; it contains about 40 houses, and there is a small interior petta on the south side.

Santa-Keyloor is about 10 miles E. by N. of Moodgul; it consists of a fort with a large enclosed petta on the east and partly on the south face of the fort; it formerly contained about 400, and at present upwards of 200 houses; the fort and the petta walls are in a state of decay; it has a weekly market and three permanent shops; the inhabitants are Lingait farmers, Beyder peons and labourers, weavers of coarse cloths and cumblies, a few Brahmins and a small Cutcherri establishment. This village is the kusba of one of the summuts belonging to the Raichoor zemindari.

Mooski stands in lat. $15^{\circ} 57' 30''$ and long. $76^{\circ} 42' 50''$, and is about 15

miles E. by S. of Moodgul ; it is situated at the east and north-east foot of a rocky and short ridge of mountains, and has its northern face upon the right bank of a large nulla to which it gives name ; it consists of a large petta of an oblique quadrilateral figure with a fort on the middle of the south face, and a main street (directed towards the large pagoda on the hill) communicating between the north and south gates. The fort is now so far in ruins as to be of no character in military defence. This place is the kusba of the Mooski pergunna ; it contains a rather large population, the chief of whom are Beyder peons, a militia body under an hereditary Naique, or rather under an aristocracy of Naiques, descendants of one ancient house ; there is also an Amildar and small Cutcherri establishment, a few families of soncars and bukkals and some weavers, and is a place of some trade.

Sindunoor stands in lat. $15^{\circ} 46' 29''$ and in long. $76^{\circ} 49' 18''$, near 23 miles S. by W. of Cavital and 27 S. E. of Moodgul ; it is the kusba of the pergunna of the same name. It has a principal and lesser petta and a fort ; the principal petta and fort have their north faces upon the right bank of a broad sandy nulla, which affords an abundant supply of good water. The principal petta is of a quadrilateral figure and upwards of two furlongs each face ; it has been well occupied with houses, but is now in a very great state of decay. The fort stands near the east face of the petta upon a rising ground, and is divided into two parts, of which the northern is inhabited ; the southern portion is about 200 yards square, and is garrisoned by a body of about 100 peons ; it is built of stone, and seems formerly to have been a place of some consideration and strength, but is at present in a neglected state ; a few swivels are still mounted on the walls ; it contains a handsome mosque. The lesser petta is about 6 furlongs S. E. of the fort, and near the right bank of the nulla ; it is occupied chiefly by farmers. In the large petta there are two or three small shops.

Gownuluggerri is situated upon the road from Cavital to Sindunoor, near 17 miles south a little east of the former, and near 7 miles N. by E. of the latter ; it is a small square but very strong gurhee, the residence of a turbulent Merasdar, who maintains a strong garrison of peons there ; the place is exceedingly liable to a deficiency of water ; a deep well is said to be dug within the fort, but the water proves brackish ; the tank without the gurhee soon dries, the cattle are then sent either to the Mooski or Sindunoor nullas.

Rowdicoonda is situated in lat. $15^{\circ} 40' 50''$ and in long. $76^{\circ} 50'$, $6\frac{1}{2}$ miles south a little east of Sindunoor, and about 6 miles N. W. from the left bank of the Toongabhudra ; it is the kusba of the pergunna of the same name, and is situated at the east foot of a rocky insulated mountain ; it consists of a small gurhee in a petta walled on all sides except towards the hill ; it does not appear ever to have been a place of much consideration, and is now in an exceedingly ruinous condition.

Hoshulli, 2 miles S. of Sindunoor, is a small square gurhee garrisoned by about 50 peons. *Pugusulldinni* is about 4 miles N. W. from Sindunoor, and is of a similar character to Hoshulli, above described. *Yeddugonuhul*, on the left bank of the Toongabhudra and opposite to *Ucholi*, also *Jyanoor*, $3\frac{3}{4}$ miles N. E. of Yeddugonuhul, and *Irra Bellary*, 3 miles S. W. of Yeddugonuhul, have each a small square gurhee with a few Beyder peons. *Timmapoor*, $2\frac{1}{4}$ miles east by north of Yedduldodi ; *Bhadoorhulli*, situated on the Mooski nulla near 2 miles S. by W. of Yedduldodi ; *Oopul*, situated on the left bank of the Toongabhudra 3 miles N. by E. of Dhure Soogoor ; *Bellugooriki*, near the left bank of the Mooski nulla $5\frac{1}{2}$ miles N. W. of Dhure Soogoor ; and *Booduwalu*, upon the right bank of the Mooski nulla 6 miles N. W. of Dhure Soogoor, have each a small gurhee furnished with a glacis and small ditch, but have no other garrison than village peons. *Yerrudoni*, $3\frac{3}{8}$ miles S. by E. of Kurutgi and $3\frac{1}{2}$ miles N. E. of Seedapoor, is a rather populous village inhabited by Lingait and Beyder farmers, &c.

Kurutgi is about 31 miles S. E. by S. from Moodgul and about 16 miles E. by N. of Kunacgerri ; it consists of a walled petta with a fort near the southern extremity of the western face ; it has a small bazar and a few traders reside there, but the population is chiefly of the Beyder caste, and owing to some feuds amongst

Enumeration of such secondary places as are distinguished from the rest in Sindunoor and Rowdicoonda.

themselves, and between them and their neighbours, the village is often in a very unsettled and dangerous state. The fort is neglected and falling to ruins ; the walls of the town are not without marks of great decay : they are, however, still regarded of some defence against the unmilitary attacks upon their neighbour ; it contains 150 or 200 houses ; a weekly market is held there.

Yedduldodi, near 16 miles S.W. of Bhunoor and 21 S. by E. of Cavital, situated upon the road from the Utcholi Ghaut to Moodgul, is a small but strong gurhee, garrisoned by about 50 peons armed with muskets ; it has a weekly market.

Dhure Soogoor stands on the left bank of the Toongabhadra river, is near 12 miles S. E. of Sindunoor and about 25 miles W. by N. of Adodi ; it is a village of secondary size enclosed by a wall and rampart ; it is chiefly remarkable as a seat of interchange of articles produced on the Doab for those produced in the gardens and wet soil of Sreegoopa, on the right bank of the river. Wheat, cotton thread of Chennay, the produce of the Doab, are exchanged for cocoanut, coriander seed, rice, supari, betel, roots and fruit. The trade is carried on by Lingait beopars by direct exchange with Sreegoopa, or by first vending the larger articles of cotton and thread at Wallajahpet.

Salgoondi is about 29 miles W. a little N. of Adoni and about 36 miles S. E. of Moodgul ; it is situated at the northern foot of a cluster of rocky mountains, and immediately under a bold and somewhat overhanging summit upon which several towers are built commanding a perfect view of the village below ; from the foot of the rock a rectangular wall projects into the plain about 2 furlongs from north to south and about 3 furlongs from east to west, enclosing the town of Salgoondi, giving it jointly with the rock an interesting and picturesque appearance ; the N. W. angle of the wall rests on a low rock crowned with a tower. It was at one time the kusba either of a summit or a pergunna, being in ancient grants called Kusba Salgoondi ; it has also the appearance of having been at one time a place of some consideration ; at present it is rather populous, but inhabited chiefly by farmers and other descriptions of agricultural and pastoral people ; the wall and towers are falling into decay, but are still partially perfect.

Seedapoor is about 32 miles nearly N. W. of Bellary and about 15 miles E. by S. of Kunagerri ; it consists of a walled petta with a gurhee at the S. W. angle, and is situated upon the left bank of the Nowli nulla ; the gurhee is garrisoned by a body of peons belonging to the Merasdar ; the petta has a small bazar, and several beopars reside there. A weekly market is also held. A great quantity of saltpetre is made here. The population consists chiefly of Lingaits and Beyders ; this place, being situated at the meeting of several roads and upon the only well-supplied nulla in that part, is much frequented by travellers.

Hunchinhal is about 4½ miles N. by E. of Karutgi ; it is a large petta enclosed by a good wall and is the residence of the Merasdar Bolreddi, who is also Amildar of the district of Rowdicoonda.

Booducopu is situated 4 miles S. E. of Karutgi and 5 miles N. E. of Seedapoor ; it is a rather large village and has a gurhee at the western extremity. A small body of Beyder militia are generally on duty at the gates. It has a small bazar, and a few beopars reside there ; a weekly market is also held. The Beyders and other inhabitants of this village are often engaged in serious disputes with those of Karutgi, so that it is dangerous for resident individuals to venture much in advance towards one or other village.

Nowli is near 11 miles N. E. of Kunagerri and about 26 S. by E. of Moodgul ; it is the capital of a pergunna (now rated only as a summit) of the same name, and stands upon the left bank of, and gives name to, a shallow sandy nulla affording a plentiful supply of water, which on account of the great drought in the country to the east is of considerable character. The jungle on the east contains a great number of peafowl, a circumstance that has given name to the village, Nowli being the Canarese word for peafowl. The place consisted of an open and walled town ; the walled town was upwards of one furlong square, the walls were lofty and furnished with sufficiently capacious towers ; one larger than the rest is situated in the middle of the village, but the works and nearly all the houses are now in a ruinous state ; within

the walls and near to the gate which is on the north face ; there is a small well-built pagoda, still in tolerably good repair. The open petta was situated chiefly at the N. W. angle of the gurhee, but it is now in a state of total ruin, and the walls used for obtaining the saltpetre they contain. A Curnum, one or two ryots and a small military party are all the present inhabitants of the village ; it has so often been plundered and ravaged, or been the seat of contention between military bodies, that it has been abandoned almost since the time of Dhoondia.

Jeeruhah, about $5\frac{1}{2}$ miles S. by W. of Nowli, is a strong gurhee occupied by a Brahmin Merasdar, who maintains a rather large body of Beyder peons.

Tullikuttoo, 7 miles S. W. of Moodgul, is a strong gurhee garrisoned by peons of the Oomlooti Zemindar ; of the villages near it Khoowunoor, $1\frac{1}{2}$ miles to the S. W., is large, but its fortification is falling to ruin.

Meddukinnuhah is situated 11 miles S. E. of Moodgul ; it is the residence of Soamshekara Row, the Nadu Gowda of the Tawurugerri district and a proprietor of 28 villages in it. It is situated upon the communication of Moodgul with Adoni, Bellary, Kumpili, &c. It has two gurhees and a small petta between them, in which a weekly market is held ; there are three shops ; a new petta is about to be built. Both the gurhees are of small and nearly square figure, but are of very thick profile, built in the strongest manner, and maintained in good order. The eastern fort is occupied by a garrison of about 200 peons ; it is built on a low rocky height with a commanding tower on the east face and is surrounded by a ditch ; the fort on the west side is occupied by a Nadu Gowda, his family and personal retainers. North of the eastern gurhee is a large garden well stocked with all kinds of fruit trees.

Talikaarunuhah, near 12 miles S. E. by S. of Moodgul, is the kusba of the summit of the same name, and one of the Meddukinnuhah Nadu Gowda's villages ; it is situated upon the road from Meddukinnuhah to Gudjuntergurh, and comprehends an enclosed petta and detached gurhee on the east side ; it has about 100 houses ; the gurhee is small but strong and in good repair, and is occupied by a garrison of peons ; the petta is occupied by farmers, chiefly of the Lingait, but some of the Beyder caste, also by weavers of coarse cloth and cumblies, which are exposed for sale at the weekly market held at this place.

Tawurugerri is about 17 miles south a little west of Moodgul, and about 14 miles north a little west of Kunacgerri ; it is the kusba of the pergunna of the same name, and consists of a large gurhee and petta ; the gurhee is near three furlongs by two, and has an interior building or citadel which is of double construction with a high tower in the interior. The petta lies N. and N. E. of the fort, its walls terminating on those of the fort. It has evidently been a place of great consideration, but owing to the turbulent conduct of the great Merasdars of Oomlooti and Menuduhah, and the feuds between them and Sirkar tenants, the place is almost entirely deserted, and is in an exceedingly ruinous condition ; of the outer works only the towers are still standing.

Menuduhah is about 3 miles S. by W. of Tawurugerri ; it is the residence of one of the great Merasdars ; it consists of a fort and petta: the former contains upwards of 100 and the latter about 200 houses ; the gurhee is of the strongest kind, but of the usual rectangular figure ; it has a tower at each angle and in the middle of each curtain, and has a complicated gateway on the east face ; the Merasdar resides in the fort, and has about him a strong garrison of peons ; the petta is situated on the N. and E. of the gurhee ; it is inhabited by Lingaits and Beyders chiefly: the former are both farmers and traders, the latter farmers, peons and labourers. Most of the former inhabitants of Tawurugerri have changed their residence to this place, the better to avoid persecution from the Menuduhah people and to secure their protection. A weekly market is held at this place, and the Zemindar gives every encouragement to new settlers of every description.

Oomuloti is about $5\frac{1}{2}$ miles S. E. of Tawurugerri and $5\frac{1}{2}$ miles east of Menuduhah ; it is the residence of one of the principal Merasdars of the Reddi or agricultural caste ; it is a strong square gurhee and contains a large garrison of Beyder peons.

Nirloomi is about 6 miles E. by S. of Kooshtugi, about 14 N. by E. of Kunacgerri, and 21 S. by W. of Moodgul.

Jomulapoor, 7 miles N. by E. of Nirlooti; *Mindapoor*, miles 5 N. E. of Nirlooti; *Madapoor*, 7 miles N. of Nirlooti; *Nawuluhulli*, $3\frac{1}{2}$ miles N. E. of Nirlooti; *Hunchinhal*, 6 furlongs N. by W. of Nawuluhulli, have each a well-built gurhee kept in good repair, and have each a complement of peons under a Gooricar or Naique maintained by Oomuli from the Zemindars or Merasdars to whom the villages belong.

Kunacgerri is about 45 miles N. W. of Bellary, and 31 miles south a little west of Moodgul, and 58 miles west a little south of Adoni. It is at present the kusba of the pergunna, to which it improperly gives name, the proper name of the pergunna being Kunnair Mudugoo. It was formerly the kusba of a large Polliam, thence called the Kunacgerri Polliam; its name is derived from Cunuca Maha Mooni, who is said to have had a manifestation of the Narsinga Avatar at this place; it was but a small town until the Kunacgerri Poligar made it the place of his residence, which happened probably between two and three hundred years ago. It is situated upon the right bank of a shallow sandy nulla of great importance to the town in yielding a large and perpetual supply of good water; it is a walled town of irregular (somewhat of egg) figure near 4 furlongs from east to west, about 2 furlongs in breadth at the eastern, but tapering towards the western end; the wall has three gates, the Dewal Durwaza to the E., the Annagoondi Durwaza to the S. E., and the Copal Durwaza to the W.; a main street leads from the Dewal to the Copal Durwaza, and is conveniently spacious; the other passages of the town are irregular and small. It is considered as having several pettahs; the principal one was on the left bank of the nulla immediately opposite to the Dewal Durwaza, but it is now in entire ruins. The only exterior petta of any consideration is that close to the Copal Durwaza, and extending thence round the S. W. corner of the town. The main street of this petta is a continuation of the main street of the town, and is remarkable for the crowd of toddy shops it contains, and which are very greatly frequented. The town is said at one time to have had upwards of 1,200 houses; at present it is not supposed that more than 150, or at most 200, of the houses within the town are inhabited, so much has it gone to decay. A few of the houses in the main street and near the pagoda, now in a very ruinous state, are of a character to mark the former splendour of the place; at present there are no habitable houses of at all remarkably good quality: that occupied by the Amildar is the best. The works surrounding the town are falling into great breaches in many places; some faint endeavours at repairs are sometimes attempted, but most generally the breaches are defended by thorny bushes alone; some of the towers are of commodious size, and better strength than the rest of the works, but in general they also are too subject to the same decay with the curtains, so that the place possesses no military strength. There is a tolerably good bazar at this place for the various kinds of grain produced in the country, and a few beopars or petty merchants also reside here. Kunacgerri is the head quarters of the regular military force maintained for the defence of the Kunacgerri, Gungawutti, Tawurugerri, Kooshtugi and Neeluwugul pergunnas; there are, however, but very few military residents at the place, they being dispersed for the most part into the different villages of the district. The arsepal, however, remains at Kunacgerri, and boasts of one or two iron and brass field-pieces. An Amildar with a small Cutcherri establishment is fixed in the town, and there are several families of Brahmins, of whom some appertain to the pagoda and others are Merasdars.

Hoolihadra is about $6\frac{1}{2}$ miles north by west of Kunacgerri; it is a large square and strong gurhee with a tower at each angle and another in each face; the walls are high and are built of stone and mud, and surrounded by a dry ditch and steep glacis. It is the residence of the late Poligar's son and heir, who has a jaghir of this and other villages; it is occupied by the family of the Poligar, his domestic and armed retainers, and Brahmins and other people in the Raja's service. Among the mountains lying south of Kunacgerri and extending to the Toongabhadra river there are several droogs, of which some were built by the Poligar of Kunacgerri, and others existed before the time of the Poligar's government. Humpis Droog is situated upon a lofty summit of one of the northern ranges; it

consists of a small work crowning the top of the hill ; in the middle is a tower ; it is now in a state of entire ruins.

Koomurramankoomut Droog stands in lat. $16^{\circ} 24' 40''$ and long. $76^{\circ} 26' 18''$; it is 16 miles E. by N. of Copal and near 12 S. by W. of Kunacgerri ; it consists of a small square citadel situated upon a small table top of a ridge of rocky mountains ; the top on which it is situated is, on account of great steepness, accessible only on the south side, which is therefore defended by a line of works ; this place was garrisoned in the time of the Kunacgerri Poligar, but has now fallen into ruin and is unoccupied, being distant from any village. There is a small pagoda without the citadel upon the table top of the mountain, at which there is a small jatra held annually ; its celebrity is owing mostly to its gloomy seclusion amongst rocky mountains retired from habitations.

Yamyegoodda is near 3 miles N. by E. of Koomurramankoomut ; it is singularly situated, just within the north [? mouth] of a long narrow valley amongst the mountains ; a strong barrier runs across the mouth, and higher up above the village the valley is flooded by a bund run across it forming a tank ; this place was the favourite retreat of the Kunacgerri Poligar, the activity of whose retainers amongst these hills gave them a commanding advantage against such species of regular troops as they had usually to apprehend would be sent against them.

Siwapooram Droog stands in lat. $15^{\circ} 20' 52''$ and long. $76^{\circ} 25' 8''$, about 13 miles E. of Copal ; it is situated upon the S. E. top of a mountainous ridge. The summit presents a small table upon which a citadel is situated, about midway the mountain is encompassed (except on the north side, where its great steepness renders it unnecessary) by a wall situated about halfway up the mountain ; from the south side of this wall a line descends along the side of the hill, and encloses a small square area at its foot ; in this the village is situated. The citadel and the line of works on the hill are built of rough-hewn stone and are in tolerably good order ; the lower works are in ruins ; the village has about 200 houses, but on account of late disputes between the Gungawutti and Copal authorities it has fallen into ruins ; there is no garrison maintained in the droog.

Gungawutti is the kusba of the pergunna of the same name ; it is about 12 miles S. E. of Kunacgerri, near 32 miles N. W. of Bellary, and about 25 miles E. by N. of Copal. It is situated in a sandy plain a few furlongs N. E. from the mountainous tract extending to the Toongabhadra river. It has a fort and petta ; the fort is of a rectangular figure and may comprise an area of about $1\frac{1}{2}$ furlongs ; it is built of large rough stones and of earth, is surrounded by a ditch and covered by a glacis ; it is kept in good repair and has a strong garrison of regular troops ; the Ameen who has charge of the districts of Gungawutti, Kunacgerri, Tawurigerri and Kushtagi resides in this place. The petta is situated at the S. E. angle of the fort and is enclosed by a wall terminating on the fort ; it has two gates, one on the north, the other on the south face ; a broad street leads from the one to the other and forms near the north gate a sort of esplanade to the fort. The petta contains between 300 and 400 houses ; it has a small well-supplied bazar, and is the residence of a number of beopars and a few soucars ; the other inhabitants are farmers, sepoys, weavers, dyers and labourers, of the Lingait and Beyder castes chiefly. A large market is held weekly, and a fair annually at the time of the jatra at the pagoda.

Burre Juntakulloo is upwards of a mile S. by E. of Gungawutti ; it is a walled town of 2 or 3 furlongs in length from north to south, and about half that breadth ; it terminates between [?] the south on a small rocky height which is fortified with works of a secondary kind, and forms a sort of citadel to the lower works ; the wall surrounding the village is of but little strength but it is entire ; and a guard is placed at the gate. The Amildar and Cutcherri establishment of the district reside here ; the village contains upwards of 100 houses ; the inhabitants are traders, cultivators, peons, weavers and labourers.

Chhote Juntakulloo is situated on the left bank of the Toongabhadra river, near 4 miles E. by S. of Gungawutti ; it has a gurhee and a petta on the east face ; an exchange trade is carried on between a few beopars who reside in the village and those of Kumpili.

Annagoondi is situated on the left bank of the Toongabhudra in lat. $15^{\circ} 21' 20''$ and long. $76^{\circ} 33'$; it is situated amongst a cluster of rocky mountains forcing the river into a narrow channel less than half the usual breadth, and is surrounded by a mountainous tract of country. It is a fortified suburb of the once celebrated city of Beejanuggur, which stretches along the immediate neighbourhood of the opposite bank of the river. The works may be considered to consist of two masses of fortified lines lying N. E. and S. W. of each other. The town of Annagoondi is comprised in the S. W. part. The S. W. fortification is of an oblong figure about a mile in length from N. W. to S. E., about 6 furlongs broad at the S. E. end, and between 3 and 4 in breadth at the N. W. end; it is situated at a small elbow of the river, so that its S. W. face, which is entirely mountainous, and its S. E. face, chiefly plain, are washed by the river. The town is situated on a small plain in the S. E. part of the lines forming a sort of enclosed petta to the fortified mountains on the west; these mountains extend in a ridge lying N. W. and S. E., and the fortifications reduced to their simplest character consist of two lines enclosing the ridge; the lower line skirts the hill on the east side, but passes up on the hill on the W. side. The upper line is discontinued in such parts where the natural difficulties are sufficient security. The other body of works are situated about $\frac{3}{4}$ mile towards the N. E.; they are irregular and complicated, but may be considered to consist of an upper and lower fort; the upper fort is situated to the S. E. of the lower, and is formed by a line of works encompassed by a very uneven and irregular range of hills extending near 7 furlongs from the south to the N. by E.; the lower fort is of a triangular figure with its vertex distant from the base about 6 furlongs directed towards the N. W., and its base, near 4 furlongs in length, resting on the northern extremity of the fortified height. The great road from Gungawutti to Annagoondi passes through the triangular lower fort near its base, and is enclosed by a double wall of works nearly from one side of the triangle to the other. The works contain no houses. All the fortified lines are built of stone; some are firm, good masonry, others but loosely built, and they are all more or less in a state of ruin and decay. The fortifications of Annagoondi are said to have been founded chiefly by Narasinghwa Ryaloo, who flourished at the commencement of the 15th century of Salivahan, or before the close of the 16th century of the Christian era. They were augmented by Krishna Ryaloo. Since the defeat of the Ram Raj the works have been neglected, and much injury is said to have been done to them by Tippoo, who in the year 1787 set fire to the town and destroyed with the buildings all the records of the Beejanuggur kings.

The town of Annagoondi does not at present contain more than 150, or at most 200 houses, of which about one-fourth form a hamlet lying without the walls and between the two forts already described; of the houses within the walls, properly constituting the town of Annagoondi, none are of at all a superior kind: the best is that occupied by the Rajah, situated nearly opposite to the pagoda. It is distinguished from the others only in being somewhat larger. Of other buildings there are but few; the most remarkable are, 1st, a pagoda situated upon a high ground on the bank of the river, still in good order and much frequented. 2nd, a pagoda at N. W. extremity of the lines; this is a handsome building in good order and much frequented; a festival is annually celebrated here. 3rd, a pagoda opposite to the Rajah's residence; this is small, but is constantly receiving such additions as the pittance the Rajah can afford to give permits. 4th, a small but very handsome mahal on the bank of the river and to the right of the water gate of Annagoondi town; the pillars of the vestibule are lofty and handsome, and there is a small but neat upper apartment with a circular gallery and terrace.

The buildings upon the droogs are few in number, of no peculiarity in their construction, and in a very ruinous state. About a mile and half above Annagoondi a double and treble line of stone pillars are seen stretching across the river, and are, it is said, the remaining piers of a bridge which was once built; there the bridge is said to have been destroyed by the boat people felling trees in the highest part of the river and allowing them to drive with the current against the piers, but, as there are little or no remains of a platform, it is very probable the

bridge was never finished, especially as there are no remains of a road leading thence to the tower of Annagoondi. A little S. W. of the bridge is a handsome well-built pagoda in quite a neglected state; near it are several caves amongst the rocks. About 4 furlongs south of the pagoda, upon the side of rocky mountains, stands a conspicuous muntapum, roughly built and falling into ruins, but remarkable for standing at the entrance of a small chasm in the rocks, said to penetrate very deep amongst the hills. The pagoda, muntapum and N. W. end of the bridge are situated upon a rocky and mountainous island divided by a very narrow but rocky and deep channel from the right bank, and by a small and very shallow channel from the right bank. Upon a lofty summit at the east extremity of a ridge of mountains and about $1\frac{1}{2}$ miles W. of Annagoondi is a pagoda called Unchinuppen; it is very conspicuous from its situation, but not remarkable in any other respect.

The small pittance enjoyed by the Rajah, and the very numerous expectations he is still to gratify, leave him but little able to support with any grandeur the once mighty house he is considered to represent—his equipage of humble quality, his attendants few and of mean appearance. He is much advanced in years, and his son and apparent successor, who lives at variance with his father, is a person of no talent or in any other way respectable.

Vencatagerri, $6\frac{1}{2}$ miles N. W. of Gungawutti, has a small gurhee also.

Ramunguddi, situated upon an island of the Toongabhadra $6\frac{1}{2}$ miles west of Humpi.

Kunnair Wudugoo is about 5 miles west of Kunacgerri; it was once the capital of the Kunacgerri pergunna; at present it is but a middle-sized village of no peculiar character; some ruins about it and a large burial-ground denote it to have been a large place at one time.

Heere Bomunihal is situated about 5 miles W. by N. of Kunnair Mudugoo; it consists of a gurhee and an imperfectly enclosed petta; the gurhee is small but has been of some strength, and has a double face on the side of the gate; it is the residence of a Brahmin, the head of a Merassi-family; the inner fort is crowded with houses, chiefly belonging to the Brahmin, his family and dependants; the works of the gurhee are decaying in many places, but it is maintained in as good order as the proprietor can afford. The petta contains about 200 houses, inhabited by peons, cultivators, dyers, weavers and labourers; there is also a small bazar.

Hooligi is situated about 12 miles E. a little south of Copal; it is situated upon the left bank of the Toongabhadra river and has rich paddy ground and cocoanut topes; it contains about 200 houses; it has a small bazar of four shops and a weekly market, which is very largely attended; on this day in particular, and generally on all others, there is a great interchange of the productions of the dry and wet soil, as cotton, wheat, juwari, bhajuru, chenni and coolti for paddy, cocoanuts, supari, sugar, ginger, saffron, &c.; on the market day coarse cumblies and cloths of all kinds and qualities, as high as to 10 and 15 rupees, are exposed for sale.

Monoor is situated near 11 miles S. E. from Copal on the left bank of the Toongabhadra river, in the immediate neighbourhood of rich paddy lands; like as at the neighbouring villages of Sungumaishwara and Rampoor, a number of beopars reside there, trafficking and exchanging the produce of the dry and wet lands; a small bazar of two shops. According to some inscriptions Monoor was once the kusba of a division.

Heere Bhogunihal is situated about 7 miles S. W. of Indoor; has a small gurhee and petta that is very fast increasing in size.

Katurki is situated $7\frac{1}{2}$ miles S. of Copal; has a small square gurhee in pretty good order, and a pettah containing between two and three hundred houses, surrounding the gurhee except at the S. W. angle; it contains a bazar of four shops, and a number of beopars reside there; they deal in cotton and the other productions of the country; a weekly market is held here; it is well attended, and cloths to the value of 30 or 40 rupees are exposed for sale.

Moodabulli, $3\frac{1}{2}$ miles north a little east of Katurgi; *Yeatti*, 2 miles E. by N. of Katurgi; *Moondurgi*, 4 miles E. by N. of ditto; *Kurkihulli*, 6 miles E. a little N. of ditto; *Luchunakeyri*, $5\frac{1}{2}$ miles N. E. of ditto, are all villages of a middle size with a small square gurhee surrounded by a ditch.

Goondubal, $5\frac{1}{2}$ miles S. by W. of Copal ; it consists of a square gurhee, which at one time was of a kind superior to those generally found, but it is now in a state of considerable decay. North of the gurhee is an enclosed and well-populated petta in which there are one or two shops.

Bissunuhulli, about $6\frac{1}{2}$ miles S. W. of Copal, consists of a small strong gurhee well garrisoned with peons ; it has a petta on the north side, containing about 200 houses ; the village belongs to a Dessye, whose peons garrison the fort, and whose family reside here in houses somewhat larger and higher, but in no other respect different from the rest.

Buttigeyri is situated about $11\frac{1}{2}$ miles S. W. of Copal ; it consists of a small square gurhee and a walled petta ; the gurhee has been of considerable strength so far as having strong profile, but its parapets have been destroyed, and the fort in consequence abandoned ; the petta is separate from the fort and is situated beyond the north face ; it consists of one main street lying east and west ; the wall enclosing it is entire but is very weak : it is occupied by a garrison of the Copal Zemindar, and has about 80 houses of cultivators and labourers.

Alluwundi is about 14 miles S. W. by W. of Copal ; it consists of a gurhee and large petta situated upon the right bank of a sandy nullah, affording a plentiful supply of water ; the gurhee is in good order and is situated upon the west side of the petta. The petta comprises about 250 houses ; it has a small bazar of three shops, and a very large weekly market ; the walls surrounding the petta are in great decay.

Cowooroo is about 14 miles W. by S. of Copal ; it has very extensive lands, over the remote parts of which there being a scarcity of water, the cultivators all reside in the same village ; the lands were for the most part divided between four Gowdas, but some appertain to a few Merasdaras ; each Gowda and each Merasdar built themselves separate gurhees, and afterwards uniting them by a wall formed an enclosure to the town. At present only two of the largest gurhees are entire ; these are situated on the west face ; that to the north is very small and in a neglected state but of thick profile ; that to the south is upwards of a hundred yards square ; it has a dry ditch and steep glacis, but seems falling into ruins ; it is garrisoned by about 50 peons from Copal. The wall round the town is in a very ruinous state, entirely decayed on the south and east sides ; it may contain 700 houses, many of which affect a sort of military defence. There is a small bazar of 5 or 6 shops ; several beopars reside there, also weavers of coarse cloth, but the greatest body of the people are employed in agriculture.

Copal stands in lat. $15^{\circ} 20' 26''$ and long. $76^{\circ} 12' 33''$, being 9 miles north of the Toongabhadra and about 52 miles W. by N. of Bellary ; it comprehends an upper and lower fort and a petta. The upper fort or droog is on a lofty and nearly insulated summit, situated in a gorge on the east side of a cluster of rocky hills which occupy an area of about $2\frac{1}{2}$ square miles ; the highest point of the group, situated 1,500 yards N. N. W. of the droog, has an elevation above the plain of 200 yards, and the height of the droog is some little more than 150 yards above the plain ; it is precipitous on all sides, but less so on that directed towards the E. N. E., on which the chief defences are constructed, there being no table or step on which works could be constructed on any other side ; there is but one ascent, which is close under the wall of the precipice facing the N. W. ; this road is covered by an apparently strong line of works built parallel to the precipice and apparently so near it as much to confine the road ; there is also a second line at a little distance running in a southerly direction from the bottom of the rock till it meets the other defences at the precipice ; but this is completely commanded in reverse from the plain. The defences of the road consist—1st, of a seemingly very strong lower work, which appears to have for its object the prevention of a direct access to the road ; and 2ndly, the upper works, of which one line runs along the edge of the precipice under which the road passes, and others of small extent seem to enfilade the ascent, as perhaps also do some of the works on the summit of the droog. There seem also to be three gateways across the road extending from the precipice on the left to the covering work on the right. The latter part of ascent to the first table

seems to be up a slight crevice at a re-entering angle, where a lower precipice joins to the other; the further ascent seems to be along the sloping table on the E. N. E. side, and to lead through one line of works before it gains the upper fort, which seems accessible only on that one point. The area of the upper fort appears very confined. The works themselves appear of good and firm masonry and to be in good order. Embrasures seem quite superabundant in some lines. The fort is said to contain numerous magazines and abundant supply of the best water even on its very top. There is a summit of the cluster of hills before mentioned situated about N. W. by N. from the droog, of nearly if not equal height with it, and distant no more than 700 yards; the lower fort is nearly rectangular, about 700 yards from north to south and about 600 from east to west. The droog occupies nearly the whole of the western side of the rectangle, so as to be enclosed by the lower fort, except at its S. W. extremity, where the precipice renders the hill perfectly secure. The lower works are partly of mud and partly of stone; they are not, therefore, of uniform strength; the lines have small inflections between the towers; they seem generally to be of weak profile, and are now in so imperfect a state of repair as to be of but little military character. The lower fort has a double line of works with a small interval between; a dry ditch passes along the whole of the lower works, both inner and outer, and the works are covered by a short steep glacis, but there is no covert way, except on the north side the terre-plain of the ditch is the same as that of the country, being formed only by the talus of a steep glacis and that of the works. The fort has but one gateway, which is on the east side, a little on the northern side of the centre of the face; the gate of the inner lines is immediately opposite that of the outer; on the N. face and near to the N. W. angle the lines ascend a low rock which is strongly fortified towards the exterior, but quite open to the interior. The outer of the two forts is closely occupied by houses; a bazar extends from one gate to the other, and a street runs between the walls of the outer and inner works. The inner fort contains also many houses, but belonging chiefly to the garrison, to the Zemindar, his Amildar and the Cutcherry establishment. The lower forts are commanded from many neighbouring heights, and the whole works may be approached under cover, particularly on the N. side, to very close distances. The petta is situated towards the N. E. angle of the fort; it is of an irregular oblong figure, surrounded on all sides except near the fort by a thick but very low (3 to 5 feet) wall, intended, it should seem, for a rampart, but left unfinished without a parapet or even ditch, and is in its present state more of revenue than military purport. The petta is divided into two parts, an eastern and western; the former contains a bazar. The population of Copal is composed of the garrison (usually between two and three hundred men), the Amildar, Cutcherry servants, 8 families of Shuroffs, 25 of Beopars or traders in the production of the soil, many bazar or Bukkal families, some weavers, dungars, dyers whose skill and materials are of some repute for colouring coarse chintz. There are no soucars; business on that scale is conducted chiefly at Kumpsagur, Hospet and Gudjuntergurh.

Copal is of great repute as a fortress among the natives generally, but in the estimation of the Zemindar especially.

Bahadoor Bunda is situated in lat. $15^{\circ} 18' 52''$ and long. $76^{\circ} 13' 19''$ E., 2 miles S. by E. of Copal. The upper fort is situated on an insulated rock, the area of whose base does not exceed a square of 500 yards; its height above the plain may be about 400 feet. The works on the rock seem to consist of a rectangular enclosure of near 400 feet from north to south, by something above half that distance from east to west, which work is on the top of the rock. It is enclosed by a line of works somewhat lower and crowning generally the precipitous sides of the rock; on the side of the road there is a third line of works. The road is on the north side of the hill; it seems to pass along the bottom of the precipice in the only part where the face of the rock is sufficiently broken to admit an ascent; the road leads under and between large fragments of rock, which are turned to advantage in the defence of the road; great part of the lower of the two higher lines is commanded from different parts of the plain; the works seem built of strong masonry and to be in good repair.

The lower fort is situated on the N. E. side of the rock; it is, of an

irregular oblong figure extending about 400 yards from north to south and about 300 from east to west ; the lower works are rather to be considered as a town wall than the ramparts of a fortress, being of very weak profile, and the materials of a poor kind, chiefly rough stone and earth ; there is little or no ditch, and their state of repair is exceedingly indifferent. There is a main gate on the east face, whence a short but broad street leads to the rock, and at right angles to it is another street directed north ; the houses are numerous. Opposite the southern point of the eastern face is a small open petta ; close to the north face are some rocks which command the whole exterior of the lower fort, but these again are commanded by the droog ; a garrison is constantly kept at this place. The inhabitants of the town are chiefly engaged in agriculture, but there are many peons, some beopars and weavers.

Yerrukulguddi is situated about 10 miles N. by E. of Copal ; it stands on the N.W. face of a large group of rocky and jungly heights, and includes a detached summit of the same, which is fortified, and has a lower petta on the north, and a smaller one on the south side. The upper fort is accessible only on the west side ; it is built entirely of granite rock, is still in tolerably good order, but is without a garrison and otherwise neglected. The petta contains about a hundred and fifty houses ; the inhabitants are employed chiefly in agriculture.

Kinnulal, about 7 miles north a little west of Copal, is a strong gurhee, built by the Merasdar but now in possession of the Zemindar, who occupies it with rather a strong garrison ; it has a mud tower at each angle and another on each face, with two stone towers about the gateway ; it is covered with a high and steep glacis and a deep dry ditch ; it is covered on the N. face by a nulla, on the east and south by wet fields, and on the west and south the ground is of a dry black soil ; the works are now in but an indifferent state of repair. The petta is situated on the W. face of the gurhee ; it has a pretty good but small bazar, and rather a large manufactory of cloths, of which some are of a fine texture ; it has a weekly market.

Kunkapoor, $8\frac{1}{2}$ miles north by east of Copal ; *Kamunoor*, 8 miles N. E. of Copal ; *Ginnugayri*, $6\frac{1}{2}$ miles E. a little N. of Copal ; *Beemtnoor*, $6\frac{3}{4}$ miles E. N. E. of Copal, and *Hutti*, $6\frac{1}{2}$ miles N. by E. of Copal, have each a well-built gurhee, with a glacis and dry ditch ; they are not occupied by the regular troops of the Zemindar, but have each a number of village peons.

Heere Shindugi is about $4\frac{1}{2}$ miles S. W. of Copal ; it is a rather large village and has a weekly market.

Tullukulloo, situated about $9\frac{1}{2}$ miles W. by N. of Copal, appears once to have been the kusba of a district, and a populous town ; it is now in a state of considerable decay ; it stands upon a high swelling ground, by which it is conspicuous from a great distance towards the south ; it is surrounded by a wall and ditch and covered with a glacis ; these works may have been of some character in former times, but are now in a very neglected and ruinous condition. This place is mentioned in inscriptions claiming an antiquity of 17 centuries. Owing to the elevated situation of, and the black soil about, Tullukulloo, water is apt to be very scarce ; there is but one well, which is without the town on the east side ; it is very deep and penetrates through the black soil and a considerable depth into rock, but the supply it furnishes is often very scanty, and always of indifferent quality.

Ittugi, situated about 15 miles N. W. of Copal, is the kusba of a summit. In the early period of the Vikrama era it was a principal village of the Agraharum of Nuregal. It consists of a fort and petta ; the fort is small and falling into ruins ; the petta lies to the south and south-east, and contains about 200 houses, occupied chiefly by Lingaits and Beyders engaged in agriculture ; there are some families of weavers, some distillers, and two shops ; a weekly market is held here. There is a beautiful pagoda in the fort.

Kookunoor, about 16 miles N. W. of Copal, $3\frac{1}{2}$ N. by E. of Ittugi, and near 9 miles S. by W. of Yelboorga. It is the kusba of a summit, and consists of a fort and petta. The fort is in a ruinous state, and the town is in a greatly declined state, but is still large in respect to the general size of villages. The inhabitants consist of Brahmin families, Lingaits and Beyders connected

with agriculture, a few weavers of coarse cloth, and one or two families of dyers. It is a very ancient town, being mentioned in inscriptions of the era of Vikrama, when it seems to have appertained to the Nurregal Agraharum, as Ittugi did ; in the 1010th year of Salivahan it is mentioned as the kusba of 33 villages. Its pagoda and other buildings (muths) towards the N. E. show it once to have been a place of some consideration.

Yelboorga is about 21 miles N. W. by N. of Copal and near 10 S. E. by E. of Gudjuntergurh ; it is the capital of a pergunna of the same name. It appears to have been a large town formerly ; the ruins of a line of works about 4 furlongs square are still to be traced. Within this wall was a fort and petta. The fort stands near the S. W. angle of the exterior works. The fort is of an exceedingly irregular figure, and comprises something less than a square furlong ; its walls are high, but appear of weak profile, and are in a very imperfect state of repair ; it is garrisoned by a party of about 50 men belonging to the Copal authorities. An Amildar, a small Cutcherri establishment, together with some beopars and ryots, occupy the fort ; the petta is now but small and lies N. E. of the fort, and contains about 100 houses ; it has a small bazar of about 6 shops ; a few shuroffs, one or two soucars, and several beopars and bukhal families reside at this place and give it some degree of commercial celebrity ; a great quantity of the produce of the surrounding country is bought by these people, either at the weekly markets held at this and other villages, or directly from the houses of the ryots. Some cotton is sent by the soucars to Wallajahpet, but the greater part of what is bought here is disposed of either at Gudjuntergurh or at Copal. Some weavers' and dyers' families are established here.

Moodola is situated about $4\frac{1}{2}$ miles W. by N. of Yelboorga ; it is a strong gurhee, the property of a Dessye, who resides in the fort and maintains upwards of a hundred armed retainers or peons. The fort is kept in good repair and is furnished with a few swivels. The petta is situated on the N. and W. sides of the town and is occupied by cultivators, the families of some of the peons, by weavers and a few dyers, and there is a manufactory of bangles or glass bracelets ; the place is increasing under the encouragement given by the Dessye ; there are two shops and a weekly market.

Bullugeyri, upwards of 14 miles N. W. by N. of Copal and 7 S. E. by S. of Yelboorga, has a bazar of 3 shops and is of somewhat larger size than the surrounding villages.

Jerrucoonta is about 5 miles N. E. of Yelboorga ; it is a small village, the residence of a respectable Dessye, and is situated upon a rocky height, the sides of which are fortified, and the summit crowned with a lofty tower now in a ruinous state ; the fortifications of this place are of a very secondary kind, built of stone and mud, encumbered with houses ill constructed and out of repair.

Hooligoodda is about $3\frac{1}{2}$ miles S. E. of Jerrucoonta above described, and, like it the property of a Dessye, and situated upon a low rocky height, which was also in like manner fortified ; the works are fallen to decay.

Bulutugji, situated 4 miles S. S. E. of Gudjuntergurh, is a strong gurhee belonging to a Dessye, who resides in it with a garrison of peons ; there is a petta in the north face of the gurhee, inhabited chiefly by cultivators.

Guddegeyri, 6 miles N. E. of Kulloor, is a strong square gurhee, the residence of a Dessye ; the lower part is built with large blocks of granite rock, and the upper with mud ; it has a circular tower at each angle and one on each face, has a high steep glacis and dry ditch ; it is apparently in good order, and is furnished with a few swivels and garrisoned by 50 or 60 peons ; a small petta is to the north of it, where reside some weavers and dyers, and the families of the peons ; it has one shop.

Chikku Maygeru is a square gurhee with a circular tower at each angle ; is smaller but in other respects similar to the above.

Urukeyri, 9 miles N. N. W. of Copal, and *Bennikul*, $9\frac{3}{4}$ miles N. W. of Copal, are of similar character with Guddegeyri, as is also *Madunoor*, 6 miles north inclining W. of Copal, only that it does not belong to a Dessye.

Reewunti is a square gurhee, the property of a Dessye ; it had fallen to decay, but is now in a state of repair ; the petta to the north and east contains about 70 houses with two shops.

Bidduwutti, the kusba of a summut ; the gurhee is in a decayed state ; has a petta.

Sirroor is a well-inhabited and garrisoned gurhee ; has a bazar and steep high glacis and dry ditch.

Mungaloor, situated $12\frac{1}{2}$ miles north a little west of Copal, is the kusba of a summut ; it consists of a fort surrounded on all sides but the south by a petta. The fort is thought of greater consideration than any other gurhee in the neighbourhood, and occupied by a larger garrison, because, belonging to the Gungawutti district, it is almost insulated, and often a hostile district to Copal. The fort has a tower at each angle and another on each face ; two large pieces and many swivels are mounted upon them ; the foundation and lower part of the walls are built of blocks of granite, the upper part is made of mud ; the dry ditch surrounding it is gone much to ruins. The garrison, commanded by a killedar, consists of a hundred peons, and a few sepoys of a more regular kind.

The petta has a small bazar of 3 shops, and besides a body of cultivators there are a few weavers of coarse cloths and cumblies and one or two houses of dyers.

Koodrimoata is a little more than 12 miles N. by E. of Copal, and full 3 miles east inclining south from Mungaloor ; it is a kind of post of observation on Mungaloor, that belonging to the Gungawutti, and this to the Copal authorities, often in hostility to each other. It is situated upon a high ground and upon a rocky rising. Its north face is entirely of native rock, the others are built of blocks of stone and mud. It has a tower at each angle, and a tower in the middle of the fort, built upon a large and high fragment of rock ; a few swivels are mounted upon the works. A garrison under a killedar occupy the fort ; its state of repair is very indifferent. The petta is on the east face of the gurhee, and is pretty populous. It has a small bazar of 3 shops ; a few weavers and dyers reside there.

Wunugeyri, 3 miles north inclining east of Mungaloor ; *Beoor*, $33\frac{3}{4}$ miles north-east by north of Mungaloor ; *Kouhal*, $6\frac{1}{4}$ miles N. E. of Mungaloor ; *Gonuhai*, $7\frac{1}{2}$ miles N. E. inclining N. of Mungaloor ; *Mooroodi*, $5\frac{1}{4}$ miles north inclining N. of Mungaloor ; have each a gurhee and small petta. The gurhees are occupied by small parties of peons, the three first as frontier places on the hostile borders of Gungawutti and Copal, the two latter (Gonuhai and Mooroodi) belonging to two different branches of a Dessye family who have large Merassi property in the Kooshtugi district ; the head members of these branches live one in Gonuhai, the other in Mooroodi. At Wunugeyri and Beyoor there are small bazars of 2 or 3 shops, and some families of weavers reside at each place.

Kooshtugi is about 20 miles N. W. of Kanacgerri, about 24 miles S. W. of Moodgul, and near 15 miles east inclining north of Gudjuntergurh. It is the kusba of the pergunna of the same name ; it is situated on the northern skirt of a high, broad and bare swell about 12 furlongs south of the Mooski nulla and on a well-cultivated and well-wooded plain. It comprehends a fort and a petta. The fort enclosed an area of about a square furlong ; it is an irregular polygon, of a somewhat octagonal figure, with a tower at each angle ; the works of this fort have at one time been of some strength, being of a thick and rather lofty profile, and having a tolerably good dry ditch ; at present it is in a state of complete ruin. No part of the parapet is standing, and the ramparts are falling into the ditch ; it is thickly set with houses, of which only few are inhabited at present, and these mostly by Brahmin families. On the west side of the fort is a petta now quite open, but exhibiting the remains of a wall by which it was once enclosed. The petta is small and inhabited chiefly by cultivators. There is a small pagoda and well-built mosque in the fort, also a tank excavated to a great depth through a rocky soil, but which is almost always dry ; the only good water is in a large and deep well 2 or 3 furlongs S. W. of the fort ; it is pierced through a rocky soil ; about the well and the road upon which it is situated there is a pleasant grove of large trees, chiefly tamarind and a few banyan. Kooshtugi was once a place of some consideration ; in

more recent times it seems to have been the residence of the Dessye or Merassi proprietor of the district, who, constantly disturbed by the Mogul armies, and finally required to admit a Musalman garrison into the fort, retired to Hunumsagar to obviate the consequence of immediate contact with the troops; the greater part of the inhabitants left the place at the same time, and the Mogul garrison being in late times withdrawn has left the place in the almost deserted condition in which it is now found.

Dotihal, about $7\frac{1}{2}$ miles N. inclining easterly from Kooshtugi; it has a fort and two pettas. The fort is small and of a square figure, similar to, but somewhat stronger than, the ordinary gurhees; it contains but few other houses than are occupied by the garrison, which consists of a few Dessyes (from Gungawutti) under the command of a petty Killedar. Of the pettas one is situated close north of the fort, the other a little distance from the west face of the fort. The pettas contain a small bazar of 3 shops; several families of beopars reside here, and the weekly market held at this place; is on a very respectable scale; besides the ordinary articles exposed on such occasions, there is a great sale and interchange of various kinds of grain, coarse cloth and cumbles; a number of families of weavers reside here.

Kundakoor, 3 miles S. E. of Kooshtugi, is the residence of a Jaghirdar; it consists of a fort and petta. The fort is a gurhee of a superior kind, well built of stone and earth, with a tower at each angle and one on each face surrounded by a ditch and high glacis. It is filled with houses, and is the residence of the Jaghirdar, his family and retainers, as well as some of the ryots. The petta is situated to the north of the town, is pretty populous, and inhabited chiefly by farmers and peons.

Booducoonti, $4\frac{1}{2}$ miles south inclining east of Kooshtugi, is a small village, the residence of a Musalman Jaghirdar, who has several houses and a rather large number of retainers; the village is small and enclosed by a weak wall.

Coorobunthal, $\frac{3}{4}$ mile south inclining east from Kooshtugi, is a small gurhee of weak profile, but having a high and steep glacis; it is the residence of a petty Merasdar.

Wanugeyri, 3 miles N. by W. of Kooshtugi, and *Becjukul*, $4\frac{1}{2}$ miles N. by E. of Kooshtugi, have each a square gurhee with an exterior petta and are populous villages.

Neyduseshi, near 2 miles W. by N. of Kooshtugi. The fort is in a ruinous state; a Musalman of some respectability resides there.

Taluwugeyri, near 5 miles N. W. of Kooshtugi and near 8 S. E. of Hunumsagar, is a rather large gurhee now but in a ruinous state; it has a small exterior petta. The hereditary Dessye of the Kooshtugi district has his chief residence within the gurhee, which is crowded with houses to an inconvenient degree; the house of the Dessye is distinguished from the others by little else than its greater size, and is but a mean and incommodious building; the crowd of inhabitants in the fort are chiefly the family and the domestics or armed retainers of the Dessye; the exterior petta is occupied chiefly by the cultivators, mostly the families of peons.

Hunumsagar lies in lat. $15^{\circ} 52' 30''$ and long. $76^{\circ} 6' 4''$; it is about 19 miles east inclining north of Jalihal, near 28 miles W. S. W. of Moodgul, about 38 miles N. by W. of Copal, and about 11 miles N. E. by N. from Gudjuntergurh; it is the present capital of the Kooshtugi pergunna, Kusba Kooshtugi having fallen into decay. The wall surrounding the town is lofty, but exceedingly weak and rapidly fallen to decay. The town of Hunumsagar is situated on the south foot and near the eastern extremity of an extensive table height of an elevation of near 150 yards above the level of the plain; it is enclosed by a wall giving the town somewhat the figure of a quadrant of which the radius is about 3 furlongs, one side rests on the foot of the heights, the other springs from them towards the south; the arc has a S. E. aspect. The town has several gates, but only two are left open, one towards the east and the other near the S. W. angle towards the south; the wall surrounding the town is lofty but exceedingly weak, and now falling rapidly to decay; from the gate on the eastern face a broad main street, owing its breadth to the intention of its being a carriage way for the *ruth*, runs

with a somewhat southerly inclination nearly to the west face; from this a variety of irregular passages lead in all directions. Near the S. W. angle of the town but within the walls is a small fort or gurhee with a confined esplanade round it; it is now in a state of considerable ruin, but has nevertheless a garrison with about 50 peons under a killedar. On the extreme point of the table height, and on which the N. E. angle of the town wall rests, a small but once very strong gurhee is built, completely overlooking and commanding the town; it was built for the immediate residence of the Dessye, and answered at the same time most effectually as a citadel to the lower town. There being no water in this place was a great objection to it, and since the town has been occupied by the Nizam's troops and abandoned by the Dessye the fort has gone to ruins and is now untenable. There is a well-built pagoda on the side, but very near the bottom of the height; but though this is the largest pagoda, and is considered but as a sort of lodge to another on the height, close to the small fort just described, there is an annual jatra in February in honour of the deity on the hill, but the celebration of the feast is at the lower pagoda.

The hereditary Dessye on abandoning Kooshtugi took up his residence in this place, and inviting new settlers by holding out to them every encouragement it was in his power to afford soon drew to this place most of the former inhabitants of Kooshtugi, oppressed by the new garrison; also some families from other places, together forming a population that occupied upwards of 1,600 houses. When the country was taken by the Seringapatam power the Dessye was ejected, and since that period the place has declined; at present there are not above 200 or 230 houses inhabited.

The population of the town exclusive of those engaged in agriculture consists of the Amildar and Cutcherry establishment, the garrison, a few Brahmin families, of whom some are connected with the pagoda, weavers of coarse cloth and a few dyers, 5 or 6 families of beopars, 6 bazar shops, some distillers and dealers in toddy, curries, and a small manufactory of gunpowder; a weekly market is held and numerously attended.

Chelugayri, $4\frac{3}{4}$ miles S. E. of Hunumsagur, is a large gurhee of somewhat hexagonal figure; it is of a pretty good profile and has a ditch and glacis, but it had been so long neglected that under some recent feud between the Kooshtugi Dessye and another Merasdar, who obtained assistance from Gudjentergurh, it was unequal to defence against the most rude and irregular kind of attack; before this occurrence it was a large and populous place, but has never recovered the pillage and destruction it then experienced; it is one of the villages belonging to the Dessye. The ruined tank east of the town at one time irrigated a valuable field of wet cultivation, but the Dessye is unable to restore its efficiency. There is a bazar of 2 shops in the village.

Bunnigoal is $11\frac{1}{2}$ miles S. S. E. of Hunumsagur; it consists of a fort and petta, and is the property of a Dessye a branch of the Kooshtugi Dessye family. The fort is occupied by the Dessye's family and his retainers, the petta by cultivators, peons and labourers.

Koansagur, $12\frac{1}{2}$ miles S. by E. of Hunumsagur, is a double gurhee; the walls are now but in a ruinous state, and the place being crowded with houses, almost exclusively those of cultivators, it has no military character.

Kulukubunda, near 14 miles S. E. by S. of Hunumsagur, has a small gurhee in which a complement of peons is maintained, but the works are in a very ruinous state; a few Brahmin and Lingait families reside in the fort.

Yelluboonchi, $5\frac{1}{4}$ miles south inclining westerly from Hunumsagur, has a very small but strong gurhee, the residence of a Dessye; the petta, on the north side, is inhabited chiefly by cultivators.

Hooligeyri, near 6 miles N. a little E. of Hunumsagur, is a large village, now in a very declined state; the gurhee is built partly on rocks and partly in the plain, and is commanded by a tower on one of the rocks.

Katapoor, 7 miles N. W. of Hunumsagur, has a small gurhee and petta; the gurhee is the occasional residence of the Kooshtugi Dessye; the petta, once of a pretty good size, is now falling to decay.

Wokoond, 14 miles W. N. W. of Hunumsagur, and is the kusha of a summutt ; it comprises a petta ; is situated at the south foot of a very small but lofty and nearly perpendicular rock, the summit of which has a work now in ruins ; the petta is enclosed, but is now small and of no character.

Neeluwugul, situated 12 miles N. N. W. of Hunumsagur ; it is the capital of the pergunna of the same name, and consists of a fort and petta. The fort is a polygon of a somewhat hexagonal shape ; the works are of the usual description and are surrounded by a ditch and glacis. It is garrisoned by a party of peons under a killedar. The petta is situated a short distance to the north of the fort. It is occupied by the families of cultivators, peons and weavers and a few dyers, and by the castes of Lingaits and Beyders chiefly, but also a few Musalmans. There is a bazar of 3 shops and a weekly market. The representative of the hereditary Dessye (now a woman) resides in the fort, also the family of the hereditary Koolkurni.

Tookuldora, 2 miles W. S. W. of Neeluwugul, is a small gurhee belonging to a Dessye, who has lately repaired the fort and made it somewhat superior to the gurhees in general.

Mulugutti, 10 miles W. S. W. of Hunumsagur ; and *Korutugurri*, $3\frac{1}{4}$ miles N. W. of Mulugutti, were formerly large villages, the former defended by a gurhee, the latter by a town wall ; at present they are in a very declined state.

VILLAGES AND TOWNS.

The actual position of every village will be found entered in the following register from the nearest visible stations, or from the nearest villages when the stations could not be seen, or the proximity of villages rendered separate stations unnecessary. To prevent the mistakes that are to be apprehended in adding, the error of the compass is stated in a particular column ; the error is always to be added to the apparent bearings stated in the register to obtain the true bearings.

The villages are arranged under their respective pergunnas, which are stated with the detail of sub-divisions into summutts. The lists and the arrangement under which they appear are conformable to those obtained from the respective cutcherries. The original lists contained numerous discrepancies by their adhering to former statements where losses have been sustained, and to new where anything has been acquired, by rejecting from their lists villages under independent rule of jaghir or other tenure, and bringing into the lists of one pergunna whatever villages of another are, by accident or otherwise, brought under the same rule. These discrepancies have as far as possible been reconciled, and the irregularities corrected. Where all doubt could not be removed, notice has been given in the column of remarks. As to orthography the following remarks copied from the Raichoor memoir are equally applicable in this memoir of the Moodgul Circar :—

“Much attention has been given to the orthography of the names ; written lists having first been procured, a person well acquainted with the names has been obtained from the cutcherri and has been made to pronounce each syllable of every name in a distinct manner. When the ear did not satisfactorily recognise the sound, reference has been made to alphabets, in which opposite to each native character its correct sound was written. The system of orthography is that of Dr. Gilchrist, as near as recollection of it would allow.”

The character of the villages is also similar to that stated in No. 84, page 61 of the Raichoor memoir. Those of Moodgul may, in their general character, be larger than those of Raichoor, and on the whole the works round them are kept in better order: the latter circumstance is attributable in part to so great a portion of the country belonging to Mirasdars of various denominations, almost all of whom affect an attitude of military defence, which is imitated by their tenants on grounds both of policy and gratification. The residences of the Mirasdars themselves are nearly all gurhees, of competent strength against any hasty insult or revenge of their neighbours ; many of them are of a character that might defeat overhasty attempts of a more serious kind ; but there are none which, either from their size,

PHYSICAL FEATURES AND NATURAL PHENOMENA.

construction, or quality of their stores, could make serious opposition to deliberate military proceedings.

RIVERS, AND ANICUTS ON THEM, AND CANALS.

The two principal rivers are the Toongabhudra, forming the southern boundary, and the Kistna, which, but for a short distance only, forms the northern boundary. The construction of the country is such that nearly all the waters flow into the Toongabhudra, into which they are conducted by the undermentioned nullas :—

1st, Mooski nulla ; 2nd, Sindunoor nulla ; 3rd, Nowli nulla ; 4th, Kanacgerri nulla ; 5th, Shindugi nulla ; 6th, Boochinhulla nulla.

Not more than one-sixth or one-eighth area of the country contributes its waters to the Kistna. There are consequently no large nullas ; the Mederyen Coata and the Nowli are the principal.

The waters of the Neeluwugul pergunna and a small part of Kooshtugi reach the Kistna through the medium of the Mullaphari, which has its course a little beyond the western and northern boundary of the Neelugul district.

DESCRIPTION OF THE TOONGABHUDRA.

General character.—It varies from 2 to 4 furlongs in breadth, its general breadth is about 3. The map shows in what degree it is occupied with islands, as all of any character are expressed in it. Where the river is free of islands and remote from mountains the bed is chiefly sandy and pretty free of rocks, and is very generally fordable in the dry season ; but it is much less generally fordable in other parts, the impediments being rockiness of bed and occasional depth of water. The banks of the river are generally high and often steep ; in the dry season only a very small portion of the bed is covered with water, and the stream is exceedingly weak. The following table points out the established passages and the character of the river intermediate between the fords and ferries. When the river is said to be fordable, it is only to be understood relative to the dry season, or from December to May inclusive ; it is occasionally fordable in the other interval, particularly in November and through great part of June.

GHAUTS.		Description of River intermediate between the Ghauts.
Names.	Characters.	
Chaggi	One boat from each bank. It has a sandy bottom, good ford.	Bed of the river sandy with a few rocks at distant intervals. Banks of earth high and rather steep.
Utholi	Sandy bottom, good ford, one boat to each bank.	
Irra Bellary	As above	
Copal	Stony bottom, from depth of water is never fordable. 1 boat to each bank.	A cultivated island lies intermediate between these ghauts ; from the south extremity of the island to Copal Ghaut the depth of water is very great.
Dhure Soogoor ...	As above, good ferry, the river being narrow as well as deep, but access to the boat is over a shallow branch of the river.	A great number of small islands, and one narrow one, continue stretching between the Copal and Dhure Soogoor Ghauts ; the bed is so exceedingly rocky amongst these islands that only one intermediate passage is said to be practicable, that is one at Chencheyri.
Masunoor	Rocky and bad ford, but is practicable to men and cattle. One boat to the right bank.	Between Dhure Soogoor and Bussapoor the river is not fordable, but from Bussapoor to Kengul, where there is an established secondary ford, it is favourable to fording. From the Kengul to the Dassunoor ford the bed of the river is rocky and difficult to ford.
Salgoondi	The ford is rocky and deep ; one boat to the left bank.	Between the Dassunoor and Salgoondi Ghauts there are several islands ; the depth of water is great and the bed rocky, so that it is not fordable. Dassunoor is on a large island stretching nearly from Dhure Soogoor to more than a mile below Salgoondi ford ; the channel between this island and the right bank is everywhere fordable in the dry season ; the broader channel between the island and the left bank is what has already been spoken of in this place.
Kalchengode	The numerous small islands as well as the south tongue of Dassunoor island prevent the passage of a boat. Ford rocky and rather deep.	
Eerukul	Good ferry, 2 boats to the right bank ; the river being here exceedingly narrow is comparatively deep and therefore never fordable.	Between Kengul and Eerukul Ghaut the river is not fordable, from depth of water. Between Eerukul and Nettoor there are numerous islands in the river ; the channels between them are reported deep and rocky and of impracticable passage.

HYDERABAD AFFAIRS.

GHAUTS.		Description of River intermediate between the Ghauts.
Names.	Characters.	
Nettoor	An excellent ford, the river being shallow and the bed sandy.	From the Nettoor Ghaut to Hoodoowala the river is easily forded, but between Hoodoowala and Kukurugolu the depth of water is too great. From the Kukurugolu Ghaut to Soogoor, on the right bank, the channel of the river is generally deep and rocky, and is not conveniently fordable except opposite to Roadrapad; at Soogoor also there is a ford, and between Soogoor and the Oolinoor Ghaut the river may easily be forded, as also for about a mile above that ghaut, but it afterwards becomes rocky and interrupted by numerous islands, being fordable only opposite to Ittugi.
Kukurugolu	No ford, the depth of water being too great. Bed rocky. One boat to each bank.	
Oolinoor	Good ford; it is supplied with a boat from each bank.	
Moostoor	Good ford, fine sandy and even bed; one boat to each bank; this is a military ghaut.	From Moostoor till to about Iodia the river is generally fordable, but thence to the Kumppli Ghaut it is not fordable; the long interval between the Kumppli and Annagoondi Ghauts is generally unfavourable to passage; the inhabitants near the banks of the river are, however, able to effect a passage in various places, but it is not thought practicable to cattle; the banks of the river are high and steep at Annagoondi; the river is but little more than 150 yards broad. Between the Annagoondi ferry and the Humpi ford are a number of stone pillars, the remains of a bridge built across the river; immediately above the bridge the hills encroach so much that at one place the breadth of the river does not exceed 40 yards. The triangular island opposite to Humpi is very mountainous, and the hills fall abruptly into the bed of the river; the channel between this island and the left bank is very shallow, and in general quite dry; that between the island and the right bank is exceedingly deep, through the reach that lies in a meridional direction.
Annagoondi	Never fordable, bottom rocky, but the depth of water sufficiently great to obviate inconvenience; four boats ply here.	
Humpi	Good ford.	
Kalugutta	Is never fordable; rocky and sandy bed, right bank hilly, left steep and high; one boat from each bank.	Between Humpi and Kalugutta there is a cluster of mountainous islands, the channels between which are rocky and deep. From Kalugutta to Ramungudda island the bed of the river is rocky and deep; at Ramungudda a boat is kept for the convenience of the inhabitants, but there is no regular passage of the river. From Ramungudda to Hooligi the river is full of islands, the bed rocky and not fordable, the banks very high. Between Hooligi and Boloorgudda the river is rocky and not fordable; there is a boat at each bank for passing to the island to get wood and forage. The village of Boloorgudda is ruined. The large island of Koorwagudda lies opposite to Monoor; the channel between it and the left bank is fordable at Monoor only; that between the island and the right bank is narrow, but never fordable, from great depth of water. Between Monoor and Rampoor Ghaut the river is nowhere fordable; banks high, bed rocky.
Hooligi	Never fordable, on account of a rocky soil, a great depth of water; one boat from each bank.	
Monoor	The passage between Koorwagudda island and the left bank is fordable in the dry season; that between the island and the right bank is very narrow, but never fordable; one boat to each bank.	
Koorogul	Never fordable; one boat from each bank.	Between Rampoor and Koorogul Ghauts the bed is rocky and impassable except for foot passengers who may pass along the bank stretching across the river a little above the village of Koorogul.
Kurkiulli	Ford, sandy bottom, pretty good.	
Moodkoor	Opposite to the village there is a pretty good ford, the ferry (where it is never fordable) is at the junction of the Shindugi nulla with the left bank about a mile above the ford.	From Koorogul Ghaut to Kurkiulli the bed of the river is rocky and impassable; above Kurkiulli the river is less rocky, but having very high and steep banks is not conveniently crossed except at Moodkoor, whence till to the Ramesserumbunda Ghaut it continues of a character unfavourable to passage.
Ramesserumbunda.	Rocky and indifferent ford; one boat to the right bank.	
Goodlanoor	Good ford, bed sandy with a few rocks; one boat from each bank.	Above Ramesserumbunda the river becomes less rocky and is fordable in many places; the banks continue high, and the bed somewhat rocky, but generally sandy.
Yenagi	Fordable; one boat to the right bank.	
Humpsagar	The ford is directly opposite to Humpsagar, but the channel being there rocky the ferry is established above a mile higher up, and is often called the Tegari Ghaut.	Above Goodlanoor the bed of the river is more free of rocks, the banks continue high and steep, and the river is very generally fordable.
Haluwagula	Good ford and ferry, one boat to each bank.	
Sovenynulli	Ditto ditto.	The Sovenynulli Ghaut is beyond the frontier.

Anicuts.

The first is at Kenchengode, where advantage is taken of the islands to build bunds, so as to force the water when at a certain level into one channel, whence a conduit is made to irrigate a considerable quantity of land on the great island of Dassunoor, and another conducts water to the land of Serrugooopa, on the right bank, where there is much wet and garden cultivation.

A series of anicuts are built across the river, so as by the means of small dykes or colwas to irrigate the banks and enable a wet cultivation to be made upon them, from Kooroogal above to the junction of the Kanaggerri nulla below, being a distance of near 30 miles along the sinuosities of the river. The first or highest is at Kooroogal, which extends completely across the river and forces water into a conduit on each bank; that on the left bank irrigates all the wet cultivation described in the plan as far as to Moodoolapoor, where it has a northern course to Ittenhal, for the purpose of supplying that tank, but that portion of the conduit is in a state of ruin and no longer affords the intended contribution.

The second anicut is just below Moodoolapoor, and, like the former, extends across the river, supplying conduits on both banks; those of the right bank are said to extend to Humpi, and to irrigate all the wet cultivation about that place; on the left bank the conduit stretches past Hooligi and Siwapooram, abundantly irrigating the valuable wet and garden lands of those villages.

The third is at Ramanguddi, where a bund stretches across a narrow channel between the left bank and a small island; this irrigates all the wet lands as low as Sanapoor, including the rich fields of Iwadia and Uttinutti.

At Sanapoor there is another bund similar to that of Ramanguddi; this furnishes the conduits that supply all the wet lands of Annagoondi.

One conduit terminating in another, the whole once formed one continuous line, but at present there are some interruptions in its continuity. After passing the wet lands of Annagoondi it has a northern course through a barren tract, winding round the foot of heights, and feeding several small tanks; at length terminated in the large tank of Burra Juntakulloo, but this part of the conduit is now in ruins, but it is supposed capable of restoration.

The next or fifth anicut is at Singugoonda, whence a conduit passes at the extensive wet lands of Barre and Chikku Juntakulloo, over which the conduit is greatly ramified. This tract is further irrigated by springs and trenches from them, cut in the sandy soil close north of Gungawutti fort, and further by the nulla passing that town, and by the tank of Barre Juntakulloo already mentioned. Of the nullahs flowing into the Toongabudra the following have already been mentioned as the principal:—

Mooski Nulla.—It has its rise near to Gudjuntergarh, and after flowing with small sinuosities through a course which in general terms may be stated as about 14 miles in a north-easterly direction, 25 miles N. E. by E., 36 miles S. E. by E., it reaches the left bank of the Toongabudra opposite to Chaggi; below Mooski it is almost destitute of banks, but furnishes a very abundant and constant supply of good water from a fine sandy bed, having in many parts a slight stream above the surface, and nowhere requires more than a slight excavation; above Mooski till to about the meridian of Moodgul the banks are generally high, and the bed in many places very rocky. There is always a small stream above the surface of the bed. In the season of the rains this portion of the river is apt to be flooded for several days together, so as to prevent a passage of it. Above the meridian of Moodgul it is of but little character as an obstacle to passage, but till to its source offers a valuable supply of water.

The *Sindunoor* nulla has its rise on the high slope of Goodadoor. After passing Tawarugerri it runs in a N. E. direction through a small hilly tract, where it has steep banks and a considerable deal of rock in its bed, which is, however, everywhere fordable in the dry season. After quitting the hilly tract it has a slightly winding course along a line of about 32 miles direct length towards E. by S., or very nearly parallel with the Mooski Nulla at an average distance of about 10 miles, and joins the left bank of the Toongabudra at Irra Bellary. It nowhere offers any obstacle to passage,

its banks being low and bed sandy. It furnishes a copious supply of good water, having either a small stream on the surface or requiring but the slightest excavation.

The *Nowli* nulla has its rise on the S. E. side of the Lingudubunda height, and after a winding course, the direct traverse of which may be about 12 miles E. N. E., 10 E. by S., 22 S. E., it joins the left bank of the Toongabhadra at Koontajee, about a mile above Munnoor. It is nowhere any obstacle to passage, but furnishes throughout its whole course an ample supply of good water; its bed sandy and banks exceedingly low.

The *Kanacgerri* nulla rises in the high ground W. and N. of Kanacgerri, and joins the left bank of the Toongabhadra at Hebbal. It is of similar character to the Nowli nulla above described.

The *Shindugi* nulla has its rise in the high ground directly south of Gudjuntergurb; it has a winding course, of which the direct traverse is nearly 8 miles south, 16 S. E. by S., 8 S. W. and 6 S. S. E., when it joins the left bank of the Toongabhadra after passing the town of Katurki; it is of similar character to those already described—that is, of no character as to passage, having a sandy bed and scarcely any banks, but affords throughout its whole course an ample supply of good water.

The *Boochenhulla* nulla has its rise near Dummul and on the high swells north of Cowooroor, and is similar to those already described. The ground about this nulla is much steeper than about the other nullahs, and the soil being black there is not the same opportunity for an occasional small extent of wet cultivation.

The smaller streams flowing into these six principal ones are all without character as impediments to traverse; in their higher parts they but rarely afford water, but towards their junction with the larger they do so. In general it may be safely concluded that all those streams about which the plan indicates a date wood jungle afford a supply of water at most seasons of the year.

Kistna River.

GHAUTS.		DESCRIPTION OF THE RIVER.
Names.	Character.	
Heere Gotey.....	<i>Vide</i> Raichoor memoir. The mountainous character of the country on the right bank of the river is obstructive of access, but there is nothing in the nature of the river itself to prevent a general passage of it, its bed being for the most part sandy. About a mile above the Kukeyri ghaat the right bank is formed by table heights which make the river of inconvenient access, and it is further so rocky and its channel so deep as to be impassable a short way above Kuruduruguddi island. A hilly tract stretches along the right bank of the river and continues till about 3 miles along Juldroog; the access to the river is difficult; the only established road is that leading to Juldroog, a fortified height on the western point of a large island, where there is no established passage of the river. The island of Juldroog is about 5 miles in length and 2 in breadth, and has two villages besides the droog, but as permission to go on the island could not be obtained the channels between it and the left bank, as also the island itself, are but imperfectly known. There are two other large islands, Meylegudda and Janjigudda, but the river is said to be nowhere fordable till to Chittapoor, where alone a boat is to be found.
Kukeyri.....	Fordable, rather rocky bed; one boat from each bank.	
Goanuwutta.....	Opposite to Goanuwutta is the island of Kuruduruguddi, between which and the right bank of the river the channel is narrow and fordable; between it and the left the channel is broad and deep, and a boat is stationed there, more for the convenience of the inhabitants of the island than for a general passage.	
Juldroog	A boat is kept at the droog for the convenience of the inhabitants of the island, and not for a general passage of the river.	
Chittapoor	Ferry tedious on account of islands; indifferent ford; one boat to the left bank.	
Kumulud'ani Nowli	Indifferent fords, no ferry...	From Chittapoor to the Umrawutti ghaat the river is so full of islands that no boat can ply, and there are but the two fords mentioned.
Umrawutti or Echampoor.	Good ford; one boat to each bank.....	
Hudugulli.....	Good ford and ferry; one boat to each bank.	
Tungudubal.....	Do. do.; this is the usual military ghaat.	
Cupella Sungum ...	Indifferent ford and ferry; only one boat.	
		Above the Umrawutti ghaat till to the Tungudubal ghaat the river is fordable in very many places. A number of islands will be found to obstruct the passage of a boat except at the established ghauts. Between Tungudubal and the Cupella Sungum the river is considered too deep and muddy to be fordable. The Umrawutti ghaat is just on the west side of the Nizam's frontier.

The few nullas which run to the Kistna from the Moogul districts are without sufficient character for particular description ; they generally afford a small supply of water sufficient for the use of the villages on their banks. There are no anicuts or canals.

LAKES, TANKS AND RESERVOIRS.

The country is exceedingly destitute of tanks ; the supply of water is furnished chiefly from wells and from the various nullas. There is nowhere any very inconvenient deficiency in the required supply of water except in the Sindumoor and Rowdicoonda pergunnas, where there is a deficiency except on the banks of the principal rivers. The principal tanks are as under :—

Moondurgi retains a constant supply of water.

Kurridikul is the largest in the district, has a very strong bund, and always contains a sufficient supply.

Killaruhutti, N. W. of Moodgul, is larger than the general size but does not contain a constant supply.

Yamyegoodda, amongst the hills of Gungawutti district, has a large tank, but it is liable to become dry ; the smaller one, close to the village, always retains a supply.

Hooligoodda, about 3 miles S. W. of Moondurgi, is a large tank with a large and strong bund, and contains water through all seasons.

There are a greater number of tanks in the S. E. parts of the Copal district than elsewhere, but few ever retain water in the dry season, and there are none that are not very liable to become dry ; such is also the character of all the small tanks in the district. The wet cultivation shown in the plan is irrigated chiefly by the neighbouring streams, by means of small and short ditches or colwas cut from a higher part of the stream ; it is only on such nullas as are almost devoid of banks that wet cultivation is attempted, except in the case of the Toongabhudra, as described under the foregoing head.

HILLS, MOUNTAINS AND GEOLOGICAL REMARKS.

The height of Gudjuntergurrh is the knot upon which the construction of the country depends ; from it a high key ridge of swelling ground stretches in a direction N. E. by E. passing close north of Datial, Moodgul and Suintakeyloor, beyond which it falls into the wall of heights dividing the Moodgul from the Raichoor pergunna. The broad ridge of this swell is of nearly uniform height ; its elevation, as ascertained in the neighbourhood of Moodgul, is 2,033 feet above the level of the sea, which is 34 feet higher than the summit of the Mooski mountain, which at but little more than 14 miles' distance stands near 200 yards above the level of its base. This fact will give an idea of the great relative height of this ridge, which is such as to bound the horizon from all sides except that of Gudjuntergurrh ; it is a continuation of the ridge mentioned in the Cavital memoir as dividing the country into two parts, of which one contributes its waters to the Kistna, and the other to the Toongabhudra.

The next principal ridge of swell passes from Gudjuntergurrh in a S. E. direction to the mountainous tract about Annagoondi ; this ridge has also a pretty uniform line, but has a general increase of height towards Gudjuntergurrh ; the highest spot is a rocky summit at Lingudubunda, which is 2,452 feet above the level of the sea, and the great relative elevation of this ridge may be inferred from the fact that it is exactly the same height as the mountain of Copal, situated only 22 miles to the south of it, and which is 200 yards above the level of the plain in which it is situated ; this ridge entirely bounds the view when seen even from any hill either to the north or south of it. Besides Lingudubunda, this ridge has several other low rocky eminences, as Mooskhulli, and that on which the Timmapa Lingum is placed. This ridge falls off towards the south and S. W. in long tongues of slopes gently declining towards and terminating on the Shindugi nulla ; on the other side, or towards the N. E., it has but little or no declivity ; it has a high branch running past Koosh-tugi and Bejukol. The slope of Godadoor, distant 14 miles from Lingudubunda, is 2,368 feet above the level of the sea.

From the Godadoor slope a hilly tract extends along the right bank of the Mooski nulla; between this hilly tract on the N. W. and the Toongabhudra on the S. E., the hills of Gungawutti and Kanacgerri on the S. W., and the Raichoor Circar on the N. E. is a continuation of a large plain extending from that Circar as far as from [?] the Malliabad hills; the surface of the plain is formed chiefly of large broad swells of a black soil. Those ridges of the Copal district lying between the Heere Shindugi nulla on the east, the Mahratta frontier on the west, the Toongabhudra on the south, and the Gudjuntergurl heights on the north are high and very broad swells, chiefly of a black soil.

The country contributing its waters to the Kistna may be considered as made up of two hollows, rapidly declining from the great ridge (dividing the waters already mentioned) towards the Kistna; of these hollows that of Mederyen Coata is one. There is a high ridge of swells on each side, gently declining towards the main nulla which runs past Mederyen Coata; these are of black soil, and nearly the whole well cultivated. The surface of the other hollow is much less regular, generally pretty level, but having a number of rocky summits, of which that of Bellumuroyengoodda alone is of height sufficient to command a view even of the summits of the greatest heights beyond the main ridge of swell.

Hills.—The mountain of Rowdicoonda is perhaps the only one which can probably be called solitary; it is rather of a round figure with a singular and somewhat overhanging knotty summit, which consists of enormous blocks of rock hurled one on another in the most irregular manner possible, with large cavities between, and offering so little of smooth surface on its top that it was not without the greatest difficulty the instrument could be placed there; its base seems a mass of solid rock coated over with loose fragments of rock and earth. It is precipitous towards the west, and more or less so on all sides except the N. E.; its height above the level of the sea is 1,958 feet, and it may be upwards of 500 feet above its base. Bahadoor Bunda, near Copal, is a solid and precipitous granite rock about 100 yards' elevation above its base.

Of *Groups* the most remarkable are those of Salgoondi, Moodgul and Copal; those of Salgoondi are the most remarkable: the highest are of a conical form with pointed summits consisting of large blocks of granite rocks lodged one upon another; the highest hill is about 550 feet above the plain and lies towards the south; those to the north are considerably lower, and have amongst them several with small table tops, of which some are stratified, particularly that close south of the town of Salgoondi; the strata is in some places overhanging and seems near horizontal.

The group about Moodgul consists of low summits, none are quite so much as a hundred yards above the plain—those to the north are somewhat the highest; they all consist of large blocks of granite rock lying quite confusedly one upon another, and upon bases of a more united body; even some of the tops show large masses of unbroken rock.

The group of hills at Copal consists of some nearly detached summits; that on which the droog is situated is the most remarkable; its height is about 150 yards above the level of the plain; it is precipitous from top to bottom on the west and south sides, and is nearly so on all others; it is almost one solid granite rock with a small table, and a few steps or tables on its declivity towards the N. E. The highest summit in the group is that on which the trigonometrical station has been taken; it is situated about 1,500 yards N. N. W. of the droog; its height above the level of the sea is 2,460 feet, and above its base 200 yards it has a table summit precipitous to the N. W., partially so in other quarters, and steep in all; its base is granite rock, seen entire in many places and covered with earth and fragments in others; the other parts of the group consist of round summits of an earthy and rocky soil slightly covered with jungle; most of the small groups of rocks dispersed over the surface of the country, particularly that tract between Moodgul and the Kistna, are composed chiefly of blocks of granite.

Of these there may be enumerated, 1st, the mountainous tract upon the Toongabhudra lying N. W. of Annagoondi. 2nd, a hilly and rocky tract stretching along the Kistna from the Jalihal district to

Vide Description of Copal.

Mountainous and hilly tracts.

Dewaraguddi island. 3rd, a central tract stretching along the right bank of the Mooski nulla between Tawuruggerri and Mooski.

Of these tracts that on the Toongabhadra is the only one that possesses heights of sufficient magnitude to be considered mountainous, and is the only one in which the masses of heights are disposed into ridges; of the others the exterior hills form a sort of a wall to an elevated table of exceedingly uneven surface covered with rock summits composed of blocks of granite.

The tract on the Toongabhadra comprehends an area of about 150 square miles; it is formed of two principal ridges running nearly east and west, the northern being about 12, the southern about 15 miles long; beyond or north of the northern range numerous groups of rocks and some lofty summits are dispersed about the plain, and between the southern range and the Toongabhadra is a mass of lofty heights dispersed into irregular and closely connected ranges; the basis of all these mountains is granite, the tops and sides exhibiting large blocks; the appearance of the tops, depending on the disposition of these blocks, are of all kinds, round, conical, pyramidal, some are sharp-pointed, others are long with fragments of rock forming all kinds of fantastic figures; most of the blocks are of angular fragments, but some few summits are composed of large rounded and singularly black masses; all the hills have great cavities between the rocks, and have but very little earth upon them. The general height of these mountains is from 500 to near 700 feet above the plain, and but few summits rise so distinctly above the general mass of heights as to be at all remarkable; the sides are exceedingly rugged and steep, and particularly towards the top, but there does not appear any particular tendency to steepness towards a particular quarter. The hilly tract on the Kistna may be divided into three portions, that lying east of Goodoogoonta, that west of Goodoogoonta, and that covering Juldroog. The tract east of Goodoogoonta comprehends an area of about 50 square miles; it is an elevated tract which appears high from the Kistna and from the Jalihal district, but has a much less comparative elevation from the S. and S. W. sides. This tract is of the description already mentioned, where the exterior hills form a sort of wall to an elevated table of exceedingly uneven surface covered with groups of rocky summits with a good deal of low jungle. The tract west of Goodoogoonta comprises about 30 miles area; the surface is formed of tables divided by steep breaks and having a general and very steep fall on the banks of the river. The Poolubhawi and Purram-poor hills are the highest, but have not so great an elevation as 100 yards above their base, but the base being high there is a very commanding view from the top of Poolubhawi. The tract covering the river at Juldroog does not comprise a greater area than 10 or 12 miles, and consists of numerous rocky summits confusedly placed; they are few in respect to the general level of the country, but many of them are 300 or 400 feet about the level of the river. The central hilly tract lying on the right bank of the Mooski nulla is of a table nature inclining gently into the plain towards the S. E., but falling somewhat abruptly into the Mooski nulla on the N. W. and N. E.; on the S. W. side it is terminated by a broken range of heights lying nearly in a N. W. and S. E. direction, and which are somewhat singular in the ridge having so very straight a course; it commences on the Mooski nulla; after a course of 6 miles it is broken by the passage of several branches of the Sindunoor nulla; at 9 miles from the Mooski nulla it again appears, and at 17 miles it falls to a ridge of mere swelling ground extending to the Toongabhadra; at about 37 miles from the Mooski nulla the large hill of Moorigoodda, near the Toongabhadra, is found situated precisely on the same line, and having its ridge of more than 3 miles in length precisely in the same direction; the ridge is generally rocky, but its highest tops, which are those of Jecadigoodda lying between Bhogapoor and Veerapoor, and that of Moorigoodda near the Toongabhadra, are large, round, and somewhat having a considerable portion of red soil mixed with the rock, and are remarkable in being covered with a fine grass, the other heights being mostly scantily covered with a low jungle. The numerous summits dispersed over the tract now under consideration are all of a rocky kind, and none of them have any at all remarkable elevation. The hills south-westerly of Tawuruggerri are all of a rocky description, having

somewhat more pointed summits than those before mentioned ; the highest is that summit situated about halfway between Menudihal and Tawurigerri, and may be about 130 yards above its base.

These are branches of a range of heights which continuing beyond the Neelugudjuntergurh and Hanumsagur heights. concul district pass close north of Jalihal and terminate near Badamy. The range consists of almost detached masses of heights having large table tops and steep sides ; the size, figure and disposition of the different masses will be best understood by reference to the plan. The surface of the tables is pretty level and free of many great irregularities, but they have numerous small ones ; the sides of the heights are exceedingly steep towards the top but more gentle towards bottom. The soil is of various kinds ; in some heights the red gravelly soil prevails, in others rock, of which some are granular and others slaty. That of Gudjuntergurh itself is entirely stratified rock on the S. and W. sides, but shows a rounder surface on the north and east sides, where it is still steep and has a rocky basis covered with red earth and stones. The stratification on the south and west sides is exceedingly distinct ; the thickness of the strata is various, seemingly from 8 or 9 inches to 2 or more feet, and are nearly in a horizontal direction ; in many parts the lower strata are broken, and leave the upper with a considerable overhanging projection, under which numerous hives of bees of a singularly large species remain in undisturbed quiet. The adjoining height of Cullukapan (on which a trigonometrical station has been taken) has its east side of a similar character, and seems almost as if torn away from Gudjuntergurh. On the north side of this hill several granite blocks were found near the side of the road containing many well-rounded and some loose nodules (but which could not be extracted without fracture) of breccia. The table tops of most of these heights are accessible only by a few particular paths, the general surface of the sides being very steep, and very precipitous towards the top, and rugged and woody towards the bottom. The table tops are for the most part very thickly covered with jungle, and they are so much of the same height that no one could be found entirely commanding a view over the others. The Gudjuntergurh table (the tongue on which the droog is situated is lower than the body of the table) is somewhat the highest ; that of Hanumsagur is the only one that has its elevation determined : it is 2,458 feet above the level of the sea, and about 150 yards above the plain.

The hills close south of Wuderkul and north-west of Kanaagerri are singular in having a very sharp and remarkably straight ridge of an exceedingly rocky soil, very steep towards the top, and the lower parts exceedingly rugged ; several of the tops are nearly of the same elevation with the highest summit, which is 2,340 feet above the level of the sea, and about 130 yards above the plain.

Soil.—The composition of the mountains has already been mentioned ; it remains to state what description of soil prevails in the plains. Red soil prevails in the following places :—In the immediate vicinity of all hills, especially over the hilly tract between Tawurigerri and Mooski, and that upon the Kistna, where the soil is also very stony and rocky. It is red and less strong about Lingasoogoor, Kuridikul, Anchosoor and the intermediate parts. It is red and nearly free from stones about Gungawutti, Kanaagerri, Kunnair, Mudoogoo, Heere Bomnhal and the whole tract tributary to the Kanaagerri nulla, also about Nowli in some degree, but more especially so about the higher parts of that nulla, as about Boodoor, Boodoocoouta, also about Kooshtugi (except the ridge of swells to the east, which is black), about Hanumsagur and Neeluwagal, and the whole of that portion of country that contributes to the Mullaphari river. In the Copal district most of that tract between the Annagoondi mountains and the river west of Copal is of a red soil, though some of the largest swells are of a black soil. Between Bissunhulli, Buttigeyri, Boochinhulla and Keysulapoor on the north and the Toongabbudra on the south the soil is red. With the exceptions of those parts which are above enumerated the surface is chiefly of black soil, especially the large plain of the Rowdicoonda and Sindunoor talooks, that of Mederyen Coata, the large swell extending from Gudjuntergurh north of Dolihal and Moodgul, the great swells of

the Copal district laying between Bissunuhulli, Aluwandi, Cowooroo, Tallukulloo, Illugi, Veerapoor, Madunoor, &c., also the great swells S. W. and N. W. of Yelboorga extending into the Gudduck district.

FORESTS, WOODS AND JUNGLES.

It is only the hilly and mountainous tracts already described that possess a feature of permanent woodiness ; but there are many small tracts of a waste woody nature scattered over the face of the country and intermixed with the cultivated parts. The jungle on the hills is the thickest and largest about the heights of the Neeluwagul pergunna, where, however, no particular use is made of it ; about the other mountainous and hilly tracts but little or no timber of any value is produced, and the tracts of a waste woody nature have scarcely any trees larger than the common thorn jungle of which it is chiefly composed. The islands on the Toongabhudra river produce the most valuable trees. The grass which is produced on the mountainous and hilly parts is much esteemed and of great value for grazing horned cattle and sheep.

Over a small tract a few miles N. W. of Copal and lying between Kulloor, Bullageyri, Kookoonoor and Ittugi there are many pleasant groves of tamarind and mango trees intermixed ; about Copal also there are two or three small groves. Small clusters or groves of trees are also to be found in other parts, but are by no means common or of any great value.

The date jungle is the most important, and the map points out where it prevails ; it is almost entirely confined to the banks of the small streams. The trees are cut and the juice extracted from them as soon as they are able to afford it, so that they are all of an exceedingly stunted growth ; where the quantity of these trees is very great some of the liquor is distilled, but more generally it is all consumed in its original state. Upon some nullas, particularly south of Hanumsagar, kurray seed is found, and oil extracted from it. North of Annagoondi there are a number of palmyra trees in the plain of Mullapoor, and as this description is exceedingly scarce in all the neighbouring country it is much in demand for buildings and esteemed of much value.

ESTABLISHMENTS AND AGRARUMS OF BRAHMINS AND OTHER SECTS.—POLLIAMS, JAGHIRES, &c.

At present there are no religious establishments of an extent or nature at all peculiar or remarkable. Pagodas and mutts with small establishments of not more than two or three persons are common, and the pagodas of Kanagcerri, Hoolgi, Ittugi and Hanumsagar have each a small establishment, somewhat larger than the other pagodas. Notices of several having anciently existed are found in a variety of inscriptions ; of these the largest was that of Nurregal, a village situated on the west side of the Nizam's frontier and appertaining at present to the Gudduck taluk ; Kookunoor, Ittugi and most of the villages of those summutts (of the Gungawutti pergunna) formerly appertained to the agrarum. To Mookoondi also, in the Rowdicoonda pergunna, there appertained extensive grants ; at present the records of these things are all that remain.

Polliams.—The largest polliam at present existing is that of Goodoogoonta, comprising the Mederyen Coata pergunna chiefly. The following is a short historical notice of this polliam:—

The ancestors of the Goodoogoonta Rajah accompanied by a younger brother, the ancestor of the present Soorapoor Rajah, came towards the south and obtained leave to settle at Goanuwutta or some neighbouring village on the left bank of the Kistna about 10 miles N. W. of Mederyen Coata, the kusba of the Coata pergunna, then under the management of the ancestors of the present Despondi, who held it in some omuli or zemindari tenure of the Beejanuggur State. The Despondi being troubled with the irregular conduct of a Beyder who lived at Gollapulli, a village about 6 miles north by east of the kusba, in a secluded situation amongst rocks and jungle affording him a stronghold, desired the assistance of the new settler, who, being himself a Beyder, was thought most competent to cope with the offender. This

HYDERABAD AFFAIRS.

application obtained the united assistance of the Goanawutta Beyder and of his younger brother who had settled at Wagungeyri (afterwards the capital of the Soorapoor district). Succeeding in their attempts against Goalupulli, the Goanawutta Beyder established considerable influence in the district, and over the Despondi. Adhering to his brother's fortunes when ejected from Wagungeyri by the Mogul power, the Beyder required his patron also to aid the cause by sacrifices to which he, the Despondi, could not agree, and out of this circumstance arose a quarrel, which after a time ended in the death of the Despondi, and the usurpation of his rights by the Beyder, who establishing himself at Goodoogoonta that place has since become the capital, and the former kusba has declined to the state of an ordinary village. On the representations of the heirs of the Despondi some consideration was subsequently afforded them; the representative of the family has a merasi property of three villages, and was invested with rights and privileges relative to durbar precedence and etiquette, which tended to pacify him, and this is the footing on which both parties stand at this day. The present Rajah is a rather elderly man of exceedingly mild appearance and demeanour, and is very much respected; he resides in the town of Goodoogoonta; his dwelling is larger and superior to the generality of houses, but is not, however, in any degree entitled to the character of a handsome or seemingly commodious building. His gooroo, a jungum, seems to have awoke his disciple to much devotion, and an ambition for purity to which he has sacrificed all his privileges as a Beyder to eat meat and drink spirituous liquors, and in other respects he affects much sanctity. The sunud of Rajah is said to have been granted to this family by Aurangzebe in return for services afforded to his arms against the resources of the Beejapoor State.

The polliam extended at one time on both banks of the Kistna, having the Coata pergunnas on the right, and Hoonshiji [?] and Kukeyri pergunnas on the left bank, and enumerates a total of 88 villages. But the Wagungeyri or Soorapoor Beyder has not been withheld by ties of blood from arresting to his own use all those to the north of the Kistna, also three villages to the south of the Kistna, at one of which he has built a strong fort and maintains a large garrison. It was the Soorapoor Rajah also that reduced the works of Goodoogoonta to the ruinous condition in which they are found; this happened about eleven years ago; at present the Soorapoor house is regarded as the protector of that of Goodoogoonta, in which relation the utmost amity subsists.

The following table exhibits a view of the former and present extent of the polliam, by which it will be seen that there are but thirteen villages left unencumbered to the Rajah's use; the whole of the lands and customs of the capital are given to peons, of which there are a large body at the Rajah's call, but he has no regular troops:—

GOODOOGOONTA POLLIAM.

Circar.	Pergunna.	Summutt.	Tenure.	No. of Principal Villages.		
				At one time appertaining to the Polliam.	Lost or relinquished by the Polliam.	Still appertaining to the Polliam.
Sagar ...	Coata.....	Kurridikul.	Khalissa .....	...	...	13
			The capital, Oomuli to peons .....	...	...	1
			Bussunturow Dessye .....	...	...	3
			Amurapa Naidu Gowdu.....	43	...	5
			Hullapa Dessye .....		...	2
			Despondi .....		...	3
			Taken by the Soorapoor Rajah		2	...
			Jaghir to the Bhupoor pagoda .....	...	1	...
			Annexed to the Moogul pergunna .....	...	4	...
			Ditto to the Cavital pergunna .....	...	8	...
			Taken by the Gullug Poligar .....	...	1	...
			Taken by the Soorapoor Rajah	4	1	...
			Annexed to Moodgul.....	34	3	...
			Taken by the Soorapoor Rajah		7	...
			Total...	88	61	27

Kanacgerri Polliam.—As this polliam no longer exists, it is not perhaps strictly necessary to make any mention of it ; it having, however, but recently been of much celebrity, a short notice of it may not be altogether superfluous. The extent of this polliam has never been so steady that any limits can properly be stated, having made acquisitions in one quarter while it has experienced losses in another. It being considered altogether a usurpation, the proper claimants have always been on the watch to repossess themselves on a favourable opportunity ; at different times, however, it has embraced the Cumlapoor and part of the Humpsagur districts south of the Toongabhudra, great part of the country (but never the fort) of Copal, nearly the whole of the Kanacgerri, Tawurugerri and Nowli districts, with several summutts of the Gungawutti pergunna.

The family of this Poligar came originally from the northward : five brothers came in company, of whom two settled in the ceded districts, where they raised a large polliam ; one went towards the south ; the other two took up their abode in Hanoomunhal, a village about three miles north of Kanacgerri, in the midst of an extensive and thick jungle which is said then to have covered that part of the country. From this retirement they began the usual depredations of a Beyder of that time, plundering the villages and inhabitants and establishing fees for their forbearance ; their conduct becoming at length too notorious, they were seized and taken before the Beejanuggur sovereign ; the frank and resolute tone of the Beyders on this occasion* gained them not only the forgiveness but the favour of the prince, who conferred upon their house the hereditary office of Nad Duluwarugi and gave them some lands. Their authority and enterprise in the service of the prince of Beejanuggur gained these Beyders and their descendants an influence favourable to the encroachments they always contemplated, and which under favour in quiet times, and under bold usurpation in unsettled ones, had extended itself over the districts of Kanacgerri, Nowli, Siwapooram, Tawurugerri and other neighbouring parts, finding their security, when not in favour or fear of their sovereign, in their strongholds amongst the hills lying between Kanacgerri and the river, whence they kept the whole country in awe. Yemyigoodda was their principal post, but they had six other droogs or fortified posts amongst the Annagoondi hills, the whole extent of which tract has great natural strength for the species of military conduct observed by the Poligars ; at present the forts are in a decayed or neglected state, and indeed never formed so much defence as the country itself afforded. Earlier, however, than the time of Nizam-ul-Moolk, the house of this Poligar began to decline, and the Poligar was at length ejected by the Nizam's arms, but again entering the country, and renewing his habits of plunder and exciting alarm, became so far formidable that on the next arrangements of interests in that part of the country his claims were taken into consideration and compounded for a portion of his former possessions ; restless and discontented, however, under a view of his losses, rather than satisfied with what he had regained, his conduct was of a kind offensive to the successive governments, as well as to the quiet and security of the country and its inhabitants ; still, however, possessing the wariness but activity of a Poligar, he long continued to elude the pursuit of the Nizam's forces sent to take him, and in which they at length succeeded only by treacherous assurances of safety and consideration ; the Poligar delivering himself up on the faith of these was immediately blown away at the mouth of a cannon. This happened about five years ago. The late Poligar, Heere Naik, traced his ancestors as Poligars of Kanacgerri through about eighteen generations. The son, Raja Rungapa Naik, still a youth, resides at Hoolihadra, one of eight villages in the Tawurugerri district given to him as a jaghir for his maintenance on the death of his father, who himself, having many relations and no less than sixteen wives, has left many encumbrances on the very limited resources of his son. This family was united by marriage to the Soorapoor and Gooogoonta Rajahs, and to the

* Tradition states them to have pleaded that this course had been taken for the purpose of bringing themselves to the notice of the sovereign ; that having succeeded they were ready to yield their lives as the forfeit of their crime, or to accept a situation of adequate honour as the reward of their enterprise.

Poligars of Keeadigerri, Arukeyri and Gullug, with each of whom some branches of the Kanacgerri family live as pensioners and expectants, and must be regarded as people likely to adopt whatever conduct may promise adequate reward: as an instance of which I may mention having met at Goodoogoonta with a very intelligent and now venerable-looking person, uncle to the late Poligar, who, for want of better occupation, had formerly commanded a body of fifty horse in the service of Dhoondia when he approached the Doab.

Kooshtugi Oomuli.—This district was long held as a fief by the ancestors of and by the present Dessye, Vencata Jya; they are said to have been the Sur Dessyes of the Moodgul Circar, and to have held the greater part of the Kooshtugi talook as the oomuli of that office, unencumbered by the claims of Despondi Koolkarum Nadu Gowdu, and all which centred in the Dessye's own house. The rights of the family, though often much disturbed, continued, without experiencing very serious innovation, until the time of Mahomed Meean's predecessor, when the Dessye preferred flight to the oppression he was subjected to. On Mahomed Shaib Meean settling that part of the country the Dessye's former rights were commuted to a jaghir of eighteen villages and an oomuli of eight villages, together twenty-six villages, yielding a clear profit of about 2,500 rupees annually; at the same time was confirmed the oomuli enjoyed by different parts of the Dessye family, viz., to Vithupa residing at Bomunhal; Yagupa and Timapa of Bunnigoal; Ramapa and two Kristnapas of Keeadigoopa; Nursuppa and Timapa of Belluwuttugi.

The jaghir and oomuli claims of other individuals on this district were also confirmed. The Dessye is a Brahmin, he resides at Taluwugeyri, but sometimes at Katapoor. He is of an advanced age, has a numerous family, and is a highly respectable man; he has upwards of a hundred armed retainers.

Mooroodi Gonuhul Talook.—This name is given to a collection of villages that were once under the management of a Dessye, who held part of the villages on oomuli tenure. The family at length divided into two houses, of which one was situated in the village of Mooroodi (*vide* No. 88), the other in Gonuhul (*vide* No. 88), hence the name Mooroodi Gonuhul talook; it comprises villages in broken summuts appertaining to two different pergunnas:—

MOOROODI GONUHAL TALOOK.

Pergunnas.	Summutte.	No. of Villages.
Kooshtugi	Kundakoor	21
	Heere Aruluhulli.....	14
	Booducoonti	13
	Bejekul.....	2½
	Chulugeyri	½
Kanacgerri	Koodrimoati.....	15
	Soolikeyri.....	13
	Underkul	8
	Total...	87

Such is said to have been its extent formerly, but it has experienced the following reduction:—

There have been transferred to the authorities of Copal	4
Ditto ditto Kanacgerri.....	32
Ditto ditto Hanumsagur or Kooshtugi..	9
	45
The Mooroodi Gonuhul talook at present consists, therefore, of but	42
	Total... 87

of which six are khalissa and thirty are oomuli; the management of the six khalissas has been taken from the Dessyes and given to Anunderao, Despondi of the

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Neeluwugul talook ; the oomuli villages remain in the family of the Dessyes. The following exhibits the particulars of this pergunna at it is at present considered to stand :—

Tenures.	Managers and Proprietors.	Kanaagerri.			Kooshtngl.					TOTAL.	
		Kodri-moat.	Sooli-keyri.	Under-kul.	Kunda-koor.	Hoero-Arulu-hull.	Budu-ooontl.	Beje-kul.	Chulu-goyri.		
Khalissa.....	Managed by Anunderao ...	1	...	...	...	2	3	...	...	6	6
Oomuli	Dessye Urulupa of Mooroodi	2	...	...	...	5	3	...	...	10	...
	Dessye Soodiapa of Gonuhul.	5	...	...	5	...	5	...	...	10	...
	Common property of both the above	2	...	...	1	1	1	...	...	5	...
	Belong to the family .....	...	...	...	...	1	...	2½	½	4	...
	Gooroo Sattia Boodia Swamy .....	...	1	...	...	...	1	..	...	2	36
Total.....										42	

Of the 133 villages composing the Tawurugerri pergunna, only nineteen are khalissa or encumbered to the use of the Sirkar, twenty-four are Oomulies of the Tawurugerri Districts. jaghir villages, and nineteen oomuli or polliam tenures ; the particulars are exhibited in the following table :—

Tenures.	Managers and Proprietors.	SUMMUTTS.									Total each Person.	Total each Tenure.
		Kusba.	Ketudoor.	Taikuwa-nuhul.	Toorawa-nuhul.	Bookun-hutti.	Tillegola.	Koolhadra.	Sauvichal.	Moloor.		
Khalissa...	Amildar	1	1	4	3	4	1	...	...	5	19	19
Oomuli.	Soomutendurow Desmook...	...	5	2	...	2	6	13	1	1	30	...
	Somashekhararow Nadu Gowdu	1	7	8	1	1	5	...	5	...	28	...
	Veeru Gowdu Nadu Gowdu.	...	3	...	...	7	2	3	...	2	17	...
	Venkapa Despondi .....	...	1	...	...	4	6	1	1	2	15	90
	Raja Runga Naik .....	...	...	...	...	3	1	4	...	...	8	...
Jaghir.	Rajavendra Swamy .....	...	...	...	...	1	1	1	1	1	5	...
	Sunkara Archari .....	...	...	1	...	...	...	...	1	...	2	...
	Venkataram Archari .....	...	...	...	...	2	...	...	...	...	2	...
	Detail to 7 persons .....	...	2	1	...	1	..	...	...	3	7	24
Total villages...		...	...	...	...	...	...	...	...	...	..	133

Soomutendurow Desmook resides at Menuduhul, Somashekhararow Nadu Gowdu at Meddukunuhul, Veerun Gowdu Nadu Gowdu at Oomluti.

The original oomuli of these people was on that moderate scale that is elsewhere found to appertain to the hereditary offices they possess, and was on that scale at the time the Kanaagerri Poligar held the country ; but in the political and provincial confusion which has since so often reigned in these parts they have been active in usurpation and bold in the defence of their acquisitions. At present they are the sovereigns of the villages they claim, paying only a very reduced rent, or rather fee, to the Government ; even this they so reluctantly yield that the Sirkar authorities are often obliged to assume an offensive military attitude in their demands of it. The great body of inhabitants in each of their villages are possessed of certain immunities in consideration of military services, and the Dessyes keep

in their own gurhees a large garrison of peons as their immediate retainers; they have in this manner a very large armed body at their control, and as such they are the arbiters of all the quarrels between more petty proprietors, or, throwing sufficient weight in favour of more petty chiefs, are sometimes opposed to each other, and are often in consequence involved in hot feuds; in general, however, they see the policy and expediency of unanimity as it regards the interference of the superior power of the Sirkar, against which they are usually therefore ready to act in concert. The independent and even insolent tone of the Dessyes pervades more or less all their dependants and tenants; the villages of the latter are generally surrounded by a rampart and towers kept in good order, and, in imitation of their chief, the inhabitants are ready to close their gates against all Sirkar officers. The population of the villages belonging to the Dessyes is usually great, and the inhabitants themselves much better-conditioned than those of the Sirkar villages; this arises from the immunities they receive, the mutual protection they afford each other, contrasted with the insecurity of the Sirkar tenants, whose lands are laid waste and property plundered, either from the wantonness of the Dessyes' tenants, or with the object of inducing their settling within the Dessyes' protection, which in some instances is bought by the payment of fees or russooms. But the irregularity of these people has not always been confined to their immediate neighbourhood; they are notorious for the committal of highway and burglarious robberies accompanied by murder and other desperate acts. The records of the zillah court in the ceded districts contain mention of them, and travelling in or near the neighbourhood of these people was at one time considered seriously dangerous; at present, however, though it can scarcely be said they have adopted entirely orderly habits, their irregularities are of less frequent occurrence and of less serious degree. Besides the villages above enumerated in the Tawurugerri pergunna, these chiefs have one or two in several other pergunnas.

Rowdicoonda Oomuli.—Nadu Gowdu Bolereddi has an oomuli of 13 villages in the Rowdicoonda talook; he is the sovereign controller of these, being accountable only for the payment of his fee for them; he is also Amildar over the remaining portion of the district, of which part belongs to the Raichoor and part to the Copal districts. Bolereddi resides at Hunchenuhal (*vide* No. 35), and being the Amildar of the district his conduct is generally of an obedient, orderly kind; his tenants, however, are a somewhat turbulent people.

Besides the principal Dessyes, the proprietors above mentioned, there are numerous others who possess one, two or more villages, and each, as far as he can, assumes something of military consequence. The Zemindar of Tawurugerri, in the Sindunoor pergunna, and another of Jecruhal, in the Nowli pergunna, each of whom has a strong gurhee, have been people of very disorderly conduct; the latter has often been charged with harbouring depredators in the ceded districts, and the former is still in contention with the Sirkar relative to several villages.

Jaghires.—Intceaz Dowla possesses a jaghir of the extent shown in the margin.

Pergunnas	Summutts	Villages.
Moodgul	Rawelli	38
	Kheruwadigi	5
	Torusal	10
	Eechunihal	14
	Juldroog	1
Mooaki ....	.....	38
Total principal villages.		106

He is said to hold this, with several other jaghirs, independent of all fees whatever. The districts are managed by an amildar appointed by himself. The late amildar, possessed of an influence with the confidential servants about his master's person, ventured on a conduct the most extravagantly oppressive and unjust,* which had a course sufficiently long most sensibly to lessen the population and injure the resources of the district.

A combination was at length formed by the naiques of the district, who, aided by the militia under their orders, and having an understanding with the killedar of Moodgul; seized the amildar and placed him in confinement. Another amildar has since arrived and assumed charge of the district, but he appears so overawed by the

* He is said to have ousted tenants and merasi proprietors, to have forcibly seized persons and property, to have burnt habitations, and to have imprisoned, maimed and murdered, as interest, apprehension or caprice dictated.

naiques and the garrison, as well as restricted by his master's orders, as to have little or no authority. Inteeaz Dowla has, it is said, about 300 infantry and 50 horse as regular troops in the district; they are stationed chiefly in Moodgul, but a small garrison occupies the gurhee of Sanubaloo, in the Mooski pergunna. There is a very large body of militia peons under two hereditary naiques, one of Mooski, the other of Moodgul; each house has been divided into 11 or 12 families, each of which has considerable influence, but they each acknowledge the senior branch as their chief, and the two chiefs maintain a good understanding with each other, so that they have at present considerable military ascendancy. These naiques and the great body of militia have oomuli and other immunities to an extent that greatly reduces the public revenue.

Pergunnas.	Villages.
Rowdicoonda	21
Copal	127
Yelboorga	81
Total.....	179

Moneran Moolk possesses a jaghir, of the extent shown in the margin, in the Moodgul Circar; this is, however, liable to some claims. To what extent the claims on Rowdicoonda are is not known. In Copal 34 villages are encumbered with oomuli, and 8 with jaghirat claims. In Yelboorga there are 17 oomuli and 4 jaghirat villages.

The particular tenure upon which Moneran Moolk holds his jaghir is not sufficiently known; he farms it to the Raichoor Raja on a zemindari tenure. The Raichoor Raja manages them in part himself, but more immediately by three amildars, of which one lives in each pergunna, that at Yelboorga being subject to the Copal amildar. A small body of Moneran Moolk's sepoy's are stationed at Copal, but the defence of the fort of Copal and the district in general is left entirely to the zemindar, who professes to have purchased some superior tenure in the fort and district of Copal. The fort is said to be the depository of all the zemindar's wealth, and he is known to regard it with all the favour and jealousy of a strong and important hold.

Mahomed Saib Mean's Jaghir.—This is held only on a tunkwah tenure; it comprises the districts and number of villages given in the margin. Mahomed Saib Mean resides at Hyderabad and never visits these districts. Various arrangements have been adopted for the management of them, all dictated by (most probably well-founded) distrust, until lately an amildar was appointed to each district, in the government of which he was independent. An ameen was appointed over the whole, but his power was limited: he was to observe and report upon, but could not himself control, the acts of the amildars, who gave themselves but

Pergunnas.	Villages.			
	Khasia or unencumbered.	Oomuli claims.	Jaghir claims.	Total.
Tawuruggerri	19	90	24	133
Gungawutti	110	40	...	150
Kanacgerri	55	21	...	80
Kooshtugi	66	102	...	168
Neeluwugul	10	10	...	20
Total...	261	266	24	551

little concern about so nugatory a check, their ingenuity and intrigues seldom failing to overrule every representation to their prejudice; these, however, supported by the touching proof of diminished revenue, at length prevailed, and the districts are now subject to their respective amildars, who are under the immediate control of the ameen, or soobadar as he is sometimes called. The present ameen, Shumsheer Khan, resides in the fort at Gungawutti, and has the chief civil and military control of the districts.

The amildar of Gungawutti resides at Junatu Kulloo (*vide* No. 50), a little S. E. of Gungawutti. The Kooshtugi Amildar resides at Hanumsagar, the Kanacgerri and Neeluwugul at the respective kusbas. A rather large body of troops are scattered in small parties over the districts as garrisons in some places, and to give confidence and encouragement to old and new settlers in other parts that are threatened or desolate.

CATTLE AND ANIMALS.

Nothing of a very particular nature occurs for mention under this head.

Horned Cattle.—Neither the number nor quality is remarkable; no deficiency or excess is anywhere particularly remarked; as to the quality the breed is thought to degenerate in the country, and for this reason cattle are frequently brought from

other parts : some come from the Nellore districts to the eastern and southern parts of Moodgul, and from Hooblee and the Savanoor districts to the western parts.

Amongst the petty traders who buy up the cotton of the district and carry it to Wallajahpet, amongst those also who carry on an exchange trade to, or but just beyond, the borders of the district, and in a less degree amongst the bukkals, who travel to the different weekly markets, a great number of carriage bullocks will be found, but they are much dispersed—not more than from two to six or eight, rarely more than three or four, belonging to the same person; most of them are of a kind somewhat better than the ordinary agricultural cattle, being brought under the opportunity of travelling through other districts. There are no lumbanies or professed carriers of any kind; such, however, are to be found in the jungles of the Sugur talook, on the north bank of the Kistna.

Sheep and Goats are in no part scarce, but are most numerous about Hanumsagar, in the Yelboorga Talook, in several parts of Copal, and in the Kanacgerri districts; in the latter the sheep have a white short and useless fleece; in most other parts the fleece is black and is capable of being converted into cumblies; about Yelboorga and Hanumsagar a good deal of ghee is made from sheep's milk, and small quantities are made in different parts of most of the pergunnas.

The flocks in general contain many more sheep than goats, though the latter are not at all scarce.

No other horses are bred in the district than the small tattoo or pony kind, and these only casually, as in all other parts; there are not perhaps 20 good horses in the whole district; the ameen at Gungawutti, and a jaghirdar at Boodacoonti, are in possession of a few of the best.

Of camels and elephants there are none save one pair of the former at Moodgul, belonging to Intecaz Dowla.

Of wild animals, deer are by far the most common and abound every where. Wild hog are found in the heights of the Neeluwugul district, about Hanumsagar, in the mountains about Annagoondi, and in the other hilly tracts of the district. Bears are said to exist on almost all the hilly and jungly tracts, but more especially in those of the Kooshtugi pergunna. Tigers, or rather cheetas, are also said to be found in most of the hilly tracts, but it is only in the waste parts of the Kanacgerri pergunna that they are dreaded in the plains; they are indeed but little spoken of in other parts.

REMARKABLE BUILDINGS.

Moodgul.—In the petta of Moodgul is a small Roman Catholic church, at which a priest from Goa presides; the benefice is not a very lucrative or splendid one; it is in the gift of the Archbishop of Goa, and the person appointed generally retains it as long as he desires; he makes an annual report to the Archbishop, and states that he receives 100 rupees annually from Goa; his charge extends over the Doab—and not at all south of the Toongabhadra, that district appertaining to Bellary, and north of the Kistna to Hyderabad, at each of which places there is another priest. His flock are greatly dispersed, but the largest congregations are at Moodgul, Copal, Sirruwurum, Bhunoor and Raichoor, to which places he makes an annual visit, on which occasion his poverty often compels him to accomplish his stages on foot; at Moodgul his congregation amounts to about 40 families, at Copal to about 30, which may answer as a scale of the rest; they are usually of the labouring class, and of the Beyder and Dher castes.

The fort is said to contain a rather handsome mahal or palace, originally of Hindoo construction, but has many alterations and additions of Moosulman taste. There is a durga about 4 furlongs north and another N. W. of the fort. In Hulla-petta there are one or two large but now somewhat ruined buildings of a mixture of Moosulman and Hindoo taste; there are also several small pagodas, none large, but the two most considerable are in the southern part of the open space between the Halla and Musti pettas.

Pailpenta pagoda is situated about 1 mile 3 furlongs south of Kurridikul; it is very small, but is remarkable and conspicuous in being placed on the crown of a high round and steep rock consisting almost entirely of one solid block of granite.

Amurapoor is about 5 miles W. by S. of Goodoogoonta; the village, situated on the edge of a table-ground, is in ruins; at the head of a break in the wall of the height and at about 2 furlongs in a N. E. direction from the village is a handsome and exceedingly well-built pagoda; it has a handsome court and cloisters, with beautiful wells of excellent water; it is said to be pretty well endowed. Pilgrims and visitors in general are offered one meal at the expense of the foundation. The building is of modern origin.

Kurridikul (for an account of this place *vide* No. 14).—About 4 or 5 furlongs in a north-easterly direction from the village is a small pagoda of modern date and humble construction, but it marks the site of a very ancient and, it may be presumed, elegant building which is said to have gone to entire ruins, and its materials taken away and applied to other purposes; these materials may be seen worked into buildings at present standing: the north gate of Kurridikul in particular presents numerous specimens of fanciful and not inelegant sculpture and fretwork. Wells are found faced with the stones, and the bank of the large tank is a greatly sacrilegious work; mahals and other buildings made at different periods by persons in sufficient authority to command the application of the materials have a great intermixture of these with others of a coarser kind; these materials were so entirely removed that no trace of the pagoda was left until in later times the former image was discovered buried in its ancient seat; the present pagoda was then built over it; the idol is in a small apartment sunk 10 or 12 feet below the surface of the ground; the inhabitants suppose this to be the consequence of the swell formed by the ruins raising the surface, rather than that the idol was originally placed below the surface of the country; there are two inscriptions, of which one is in the year of Vikrama 4, the other is supposed to be 1053 of Salivahan; the idol is Soyembhoo. Puschiama Soma Nathu Dewu, but now called Kooni (or cave Somanaut).

Jaoorkulah is about 14 miles N. by W. from Moodgul and stands on the right bank of the Kistna. It has a somewhat larger and better-built pagoda than is found in the villages in general.

Nowli is also situated upon the right bank of the Kistna, and is about 4 miles S. W. of Jaoorkulah above mentioned; it has a pagoda but it is inferior to that of Jaoorkulah, and remarkable chiefly on account of a large stone covered with inscription of the date of 184 Salivahan, showing Nowli to have then been one of the 300 dependencies of Kurridikul.

Mooski (for its situation *vide* No. 25).—On the summit of one of the tops of the ridge of mountains towards which the main street of the town is directed is a high square pagoda well built of stone and chunam, there is a good deal of carved work about it, and a lofty and spacious terrace with stone steps leading to it from the bottom of the hill. There is a smaller pagoda upon a summit near the N. W. extremity of the ridge.

Sindunoor (for its situation *vide* No. 26).—In the fort of this kusba is a large and well-built mosque situated upon the summit of the swell upon which the fort is built, and commanding a view of the country for a considerable distance around.

Mookoondi is situated upwards of $1\frac{1}{2}$ miles west some little south of Kenchen-gode, the former upon the left, the latter upon the right bank of the Toongabhadra river, here divided into numerous channels by islands. It is an ancient agraharum, at one time much favoured and encouraged, but now a quite forlorn, destitute and nearly ruined village, in which, however, one or two Brahmin families still reside. Two pagodas, monuments of its former greatness, are still left, one directly opposite to the west face of the village, the other a little more distant from the north face and upon the bank of the river; that on the west face of the village is a handsome building formed entirely of hewn stones neatly and carefully fitted into each other, and profusely ornamented with deep mouldings and filled [?] work and has a handsome vestibule; the building is undoubtedly of great antiquity, and, according to some inscriptions found in it, claims an antiquity of upwards of 18 centuries; the pagoda to the north is of an inferior kind.

Nowli (for its situation *vide* No. 37).—In this place there are three pagodas, one within the gurhee, which is a small but well-built temple consisting entirely of

stone. At Dnagogapoor, about $1\frac{1}{4}$ miles N. W. of Nowli, is a rather large pagoda pleasantly situated within a grove of trees. There is also a very small pagoda upon the southern summit of the range of heights and $2\frac{1}{2}$ miles S. W. of the village.

Here *Dhunkunakulloo*, near five miles S. by E. of Nowli, and *Burre Hunuwal*, about $8\frac{3}{4}$ miles S. of Nowli, are both gurhees of a form and strength superior to the general character of the walled villages.

Poor, situated upon the right bank of the Nowli nulla, $5\frac{1}{2}$ miles S. E. of Tawurugerri and $1\frac{1}{4}$ miles S. by W. of Oomulooti; the proper name of this village is Poor Trippoorantacapoor, from a name of Mahadeo; about 2 furlongs westerly from the village is a pagoda called Crore Lingum, or ten million lingums; the whole building is covered with groups of these symbols, so as to form a total of 10 millions, according to the acceptance of the inhabitants; when this pagoda was built it does not appear, except as far as it may be ascertained through the name of the founder, who appears to have been Trilokea Somanatha Dewu, according to an inscription on the principal image. Another inscription shows it to have been favoured by the wife of Seedaswa Ryaloo, who made a tank and prepared rice fields behind it for the benefit of the pagoda, and there is a grant dated in the year Salivahan 461 giving all the Umurum claims upon the village of Poor to the pagoda.

Here *Bheregi*, about 6 miles east of Tawurugerri, has in the fort a small pagoda dedicated to Kulludewuru; it is stated to have been built in the year Salivahan 1023, and to have been endowed by a gift of the village.

Kanacgerri (for its situation *vide* No. 46).—Within the walls and close to the east gate of the town is a large pagoda dedicated to Narsinga; the original foundation of the pagoda is said to have been made in a very remote age, and had its origin in a manifestation of the Narsinga Avatar to Kunaca Maha Mooni. In the course of ages the building and place fell into decay and neglect, but in the time of the Ryaloos again began to attract notice; the deity is but rudely if at all represented, the idol being a rough piece of native granite with a crevice; a dispute occurred between the Smart and Vishnu sects, the one insisting it typified the Yoni, a symbol of Mahadeo, the other that it marked the mouth of the Narsinga Avatar; the disputes on these points were high in the time of Kristna Dewu Ryaloo, who proposed and obtained a general consent to the expedient of casting two brass figures, one to represent Mahadeo, the other Vishnu, and whichever form proved most perfect was to be accepted as marking the presiding deity; this occurring to the form of Vishnu, the Smart abandoned their pretensions, and the stone has ever since been acknowledged to represent the Narsinga Avatar. On this occasion Kristna Dewu Ryaloo enlarged and beautified the former building, paved a spacious court and enclosed it with a wall and cloisters ornamented by figures in stucco work representing scenes in the Ramayanum; subsequently the Kanacgerri poligar has aided in ornamenting the pagoda in particular by figures of stucco work occupying the niches in the great vestibule; these figures are in groups representing Kristna and other deities in their celestial abodes in the company of Rishies and men of eminent piety; in some of these groups the poligar himself is represented, sometimes in the attitude of adoration, and in others in humble fellowship with the saints; the figures are said to be very exact likenesses of the late poligar. The pagoda was greatly encouraged by the Ryaloos, and the present representative of that house still offers his mite towards its support; in 1817 his present was a large gilt Hunooman made of wood and sent at the time of the festival in February. Its present income is reduced to 1,000 rupees annually; the scantiness of this sum, as well probably as want of integrity in its administration, prevents the necessary repairs, so that the building is decaying in many places.

Hunooman pagoda.—About a mile north of the town, upon a summit of a ridge of slopes, stands a small but well-built Hunooman pagoda, about which there is a scanty grove of trees; at the time of the jatra and immediately previous to placing the deity on the car a deputation of the inhabitants headed by the amildar go in procession from the town to this pagoda to propitiate so mighty a power as Hunooman is considered to be, and to engage his good-will towards a peaceable

prosecution of their ceremony. At one or two furlongs west of the Copal gate, of the town is a very handsome stone basement and platform on which it was intended to raise a pagoda, but the reverses in the fortunes of the poligar have led to its occupation by a mud musjid.

On the north side of the town there are several small well-built pagodas and two stone tanks; of the latter, one about 3 furlongs from the N. E. angle of the town is deserving notice; it may be between 20 and 30 yards square; a handsome double flight of steps lead into sunken apartments whence there is a broad passage to a handsome stone gallery passing entirely round the well; from the floor of the gallery steps are made to and below the surface of the water, which is abundant and clear, but, being seldom or never used, has a badsmell. On the side opposite to that in which are the steps leading to the chamber an apparatus for drawing water is constructed, and under it a small fancy gallery. The sunken apartments contain several small recesses or pagodas, greatly damaged by the cupidity of the people, who imagined they secreted treasure, but the great body of the work is in good order, and it is a very handsome construction.

About three miles W. by N. of Kanacgerri is a small hill on the western summit of a range. On the side of this hill is built a small pagoda dedicated to Lukshmi, and on the summit is a muntapum of rough stone, but of good effect seen from the plain below; it is this hill or gerri that gives the termination to the name of the town.

Gungawutti.—2 or 3 furlongs south of the town there is a small but handsome pagoda pleasantly situated in a small grove; it is dedicated to Eswara and much frequented by the Lingaits; it has an annual jatra.

Annagoondi (for an account of the buildings of this place *vide* No. 52).

Davurrugooddu is a very conspicuous but not otherwise remarkable pagoda upon the summit of a lofty hill projecting from a long ridge, and is about 13 miles east by north of Copal.

Hoolgi (*vide* No. 56).—About 300 yards westerly from the village is a small pagoda, at which there is a rather large jatra held annually in the month of May. Several inscriptions of the Vikrama era are near the pagoda.

Kinulhal (*vide* No. 69) and *Yerrakulgudda* (*vide* No. 68) have each a well-built stone pagoda.

Ittugi, 15 miles N. W. of Copal. In the fort of this place stands a pagoda of great celebrity for its beauty; the building is of handsome design, is built of fine-grained stone of the blue kind, and is covered with a great profusion of sculpture, the reputation of which is so great that artists from remote parts are said to journey to this place to study models for sculpture, casts, and painting. According to an inscription which it contains, it was built before the 37th year of Vikrama by Dhundadhi Nathu, the Pradhan or minister of Juggudiku Mulu Dewani of Callianee. The Pradhan intended (as the inscription states) that the beauty of this pagoda should exceed that of all others in the world, and his success has been such as to excite astonishment in the gods themselves. Ittugi was at that time one of the villages comprising an extensive agraharum of which Nurregul, about 12 miles N. W. of Ittugi, was the kusba or capital.

Kookenoor, about 16 miles N. W. of Copal, has an ancient pagoda, still of some celebrity; it contains many grants: one at the Nou Linga pagoda is dated in the 137th year of Salivahan. About 8 or 10 furlongs N. E. of the village, at the ruined village of Kukkihulli, are two mutts.

Culloor, 18 miles N. W. by N. from Copal, has a rather large pagoda, rendered conspicuous by a goperam or spire over the gate. Grants are found at the pagoda, of land given to it in the 23rd year of the era of Vikrama; a small pittance is still allowed to the pagoda, which jointly with a small assistance from the Lingaits of the village enables ceremonies still to be performed there.

Bidduwutti, near 12 miles N. W. by N. of Copal; a little south of this town is a very conspicuous jungum mutt pleasantly situated in an open grove of trees.

Copal.—The droog and town have already been described; the most remarkable of the other buildings is a jungum mutt situated upon the small rock about 7 furlongs

west of the droog; a hollow or chasm in the side of the rock has been built into apartments, and a handsome front given to them; it is called Guvi mutt, or the cave convent, is the residence of the zemindar's priest, and much favoured by the zemindar; the other pagodas, south of the fort, are small but neat stone buildings of no particular character.

Kooshtugi, the kusba of the pergunna of the same name. Within the fort is a small pagoda, and a large well-built mosque; about 3 furlongs south of the town is a handsome mausoleum; it is well built, but being neglected is becoming impaired; a little west of the mausoleum is a small neat pagoda pleasantly situated in a grove of trees, and has a small jatra annually.

Lingunubunda, upwards of 6 miles S. W. of Kooshtugi, is a small village; near half a mile towards the south there is a small rocky height situated upon a swell; from this ridge, which bounds the horizon in all places whence it is seen, there is necessarily an extensive view, a circumstance that seems to have aided in inviting some attention to the rock, which has several buildings upon it, of which one is a small pagoda formed by apartments built amongst the fragments of rock in the manner of caves. Over the pagoda is built a small but very conspicuous durga of Moosulman construction. The pagoda is enclosed, and a handsome gateway seems to have been projected, but only in part finished; there is a small jatra at this place annually, and for the procession of the idol in the car a raised road has been made. Two or three other durgas are built on different parts of the rock, and on the highest of the several low summits of the rock a circular tower has been raised, and afforded with some repair an excellent trigonometrical station; it appears to be the site of a former pagoda, a stone pillar such as are found placed before pagodas, for supporting a lamp, being enclosed in the centre of the tower.

Hanumsagur.—On the site and near the foot of the height on the north side of the village is a pretty good pagoda with commodious terraces formed upon the side of the height; a jatra is annually held here in February, but it is in honour of the idol in a pagoda on the hill, of which this pagoda is but a lodge. To this pagoda on the hill there is a broad paved road of steps, on some of which the names of different deities are cut, and several small pagodas are built upon its borders; the pagoda itself is a small but very neat and seemingly a modern building with a small detached cloister in rather a ruinous state. The pagoda stands close north of the small gurhee at the S. W. point of the table-height.

Chelugeyri, $4\frac{1}{4}$ miles S. E. of Hanumsagur; close left of the entrance to this village is a large handsome well-built mutt, now deserted and neglected.

Chundapam pagodu standing about 2 miles N. W. of Hanumsagur; in a hollow of the table-heights considerably elevated above the plain is a very handsome building; roads lead to it from Hanumsagur on the S. E. and from Belugi on the north; a small but handsome muntapam stands on a small top near the fall of the table-land.

MINES, MINERALS AND MANUFACTURES.

There is but little difference between Moodgul and Raichoor Circars in relation to the above heads.

Mines.—There are none of any kind.

Minerals.—The only fossils obtained are salt and saltpetre. Salt is obtained so very generally over the whole district that it is needless to particularize the places. The mode of obtaining this is first by collecting the earth; this is done by a person who with a (momati) spade and a basket, and, if he can afford it, accompanied by a bullock with panniers or bags, searches the surface of the country and scrapes off such earth as is covered with a slight efflorescence. This is brought to the pans (always constructed in the immediate neighbourhood of water) and placed in a sort of basin made on the top of a low mound with a filter of twigs generally at the bottom; in this basin it is well mixed with water, is covered over, and the water, well impregnated with the soil, is left to drain through the filter, whence it is conducted by a rude channel of chunam or hollow wood to the pans below; these are 2 to 4 or 5 yards square, quite shallow, and the floor made of chunam; in these the water is left to evaporate, after which the salt is collected; it is sometimes purified by one

or two boilings and sometimes not. Saltpetre is made in various places, but not in very great quantities; about Seedapoor, in the Rowdicoonda talook, about Nowli, in the Gungawutti pergunna, and about Moodgul more is made than in other parts.

Manufactures.—Thread is the most general of all. In every village, both large and small, the females of all the poorer families occupy such time as is not required to more urgent affairs in spinning of thread; this is made but in the coarsest manner, and is exposed to sale at the weekly markets, where it is bought by weavers in part, but by beopars in larger quantities, intended for the China market, either by direct conveyance to Wallajahpet, or by deposit in some intermediate factory of the more opulent soucars on the left bank of the Toongabhadra.

The next article is cloth. This is made in all the villages of the larger class, and in many of the smaller it is chiefly of a coarse kind from 1 to 3 or 4 rupees' value each piece, but at the larger class of villages coloured cloths worn by women, roomals or handkerchiefs for a headdress, and dhotars are made; at some of the larger class villages fine cloths to the value of 30 or even 40 rupees are made in small quantities. At Moodgul there are near 300 families of weavers. Some cloths of a fine texture having silk borders are made. The finer cloths are mostly made to the order of factors, but the coarser kind are usually exposed for sale by the weavers at the weekly market, where they are purchased by beopars, by whom they are sold, part in the district, and part exported, chiefly in a northern and N. E. direction.

Cumblies of a coarser kind are made nearly in all the villages, mostly in the Copal, Kooshtugi and Yelboorga districts, a somewhat less quantity in the Tawuruggeri and Moodgul pergunnas, but few in Mederyen Coata, Rowdicoonda and Sindunoor, a still less quantity in the Gungawutti pergunnas, and none at all in the Kanaeggeri pergunna. The cumblies are mostly disposed of at the weekly markets, where they are bought by individuals for their own use, and by beopars for exportation north of the Kistna.

Dyeing.—Families of dyers are found in almost every village of the large class; they are divided into two classes, of which one practise the dyeing of thread only, the other cloth; the former are numerous, the latter not so; they are competent to dyeing the thread of almost any colour, but orange and red are the most usual colours. No opportunity for satisfactory inquiry into the process observed or the materials used has occurred.

Tari and Arrack.—Wherever date jungle is found, it is eagerly applied to furnishing tari, which in districts having so large a Beyder population is in very great request. It has already been mentioned that it is only upon the banks of the nullahs running over a red soil that the date jungle is found; this occurs in some few parts of Copal, more generally in the Yelboorga, Neeluwugul and Kooshtugi pergunnas, but more especially in Kanaeggeri; it is found in some parts of Tawuruggeri and Moodgul, but little either in the Coata or Gungawutti districts, and scarcely any in the Rowdicoonda or Sindunoor districts; where it is more plentiful than can be disposed of in its raw state, part of it is distilled into arrack. The trees being cut immediately they are capable of yielding juice causes the jungle to be very much stunted. The jungles are everywhere farmed out at a high rate to a contractor, who adopts his own arrangements for the disposal of it.

Oil from the yerrundi and teel seeds is made in several villages of the Kooshtugi, Neeluwugul, Yelboorga and Copal districts, but on a scale for home consumption only; what is exported is in seed, and chiefly to Gudjuntergurh, where there are many families of oil-pressers. Oil from the kurrunga seed is also produced. The kurrunga seed grows on the banks of some of the nullahs in the Kooshtugi district; the oil produced from it has no other recommendation than its cheapness; it is a lamp oil, and produces a great quantity of smoke of an unpleasant smell and unwholesome quality.

Sugar, of the coarsest, is made at several of those villages on the banks of the Toongabhadra which have an extent of wet lands; this article finds a ready sale for dispersion into the interior of the district.

Gunpowder is made at Moodgul and Hanumsagar in sufficient quantities for the demands of the Circar authorities, and a further small quantity for general sale.

It is also made, in very small quantities, at Goodoogoonta, Gungawutti and several other of the principal towns.

Glass.—A manufactory of the glass bracelets worn by women is found at Moodola, in the Yelboorga pergunna.

ROADS, PASSES AND DEFILES.

The mountainous tract lying on both banks of the river about Annagoondi and Humpi, offering an impediment extending about 15 miles, divides the line of the Toongabhudra as to passage into two parts lying N. E. and S. W. of each other. The best passages of the N. E. portion are at Chaggi or Utcholi as an eastern, Nalloor as a central, and Mustoor as a western passage. From the Chaggi and Utcholi ghauts the best line in reference to water and supplies would be by Bulugunoor, Pamunkelloor and Mederyen Coata to the Kukeyri ghaut, but in reference to the ghaut itself, and more especially to the construction of the country beyond the river, it will seldom be thought an advantageous route, for north of the Kistna the ridges of mountains and hills and an uneven surface of country will render it more convenient to go by Shawpoor, keeping the mountainous tracts on the left, or by Jallikota, keeping the whole of the uneven tract on the right; to go by the former (or Shawpoor) the best route from the Toongabhudra lies through the Raichoor Circar, and to pass by Jallikota the best route is by the Moostoor ghaut of the Toongabhudra, and the Jallikott. ghauts (that is, any of the ghauts lying between the Chittapoor ghaut and the Cupella Sungum, all of which are in the Jallikota district) of the Kistna, as there is no proper passage of the Kistna between the Kukeyri and Chittapoor ghauts, and because the direct road to the former is from the Utcholi ghaut of the Toongabhudra, and the direct road to the Chittapoor passage of the Kistna is from the Moostoor ghaut, it follows that in crossing at Nettoor as an intermediate passage of the Toongabhudra it is necessary to incline to the right to gain the Utcholi communications, or towards the left to gain the Moostoor communications. Inclining to the right the proper route will be by Rowdicoonda and Sindunoor to Bulganoor, inclining to the left it will be by Karutugi, Mylapoor and Sunkunihal on the Moostoor communication. The Moostoor ghaut is the usual military ghaut in passing from Bellary to Poona, Beejapoor, Punderpoor and Jaulna; the route is by Seedapoor, Nowli, Oomuti, Moodenoor and Lukkehal to the most convenient of the Jallikota ghauts. If the passage of the Toongabhudra is to be made above the Annagoondi mountains, and the object be to gain the Kistna, the best passage will be at Mookoor, thence by Copal, Koodrimoati, Wunkulcoonti, Kooshtugi and Datihal.

The great communication in this direction is from Copal by Koodrimoati, Kanacgerri, Nowli and Sindunoor; owing partly to the waste state of the country, and partly to the state of the surface and the disposition of the hilly and mountainous tracts upon it, it is usual in contemplating an easterly course from whatever part of the western frontier to pass on Nowli: thus from Dummul the usual route is by Cowloor, Copal, and as above mentioned, although it is not obvious why the seemingly much more direct route of Kookunoor (or Ittugi), Mungaloor and Kunnair, Muddagoo and Kanacgerri should not be taken, as supplies are certainly as plentiful, so also water; there is nothing relative to the surface that can make the road objectionable.

If the western frontier is entered by Yelboorga the route would be by Gud-digeyri, Mooroodi, Gonnhal and Bomunihal to Kanacgerri. If the western frontier is crossed still higher, or towards the north at Gudjuntergurnh the route might still be, and often is, taken by Kanacgerri, though it is hardly necessary to go so far to the south; by Bunnegoal, Kundakoor, Boodoor, Hoolihadra, and Nowli is a more direct and a perfectly practicable route.

In Rowdicoonda and Sindunoor the waste state of the country, and not at all any obstacle of permanent feature on its surface (of which indeed it is entirely destitute) to prevent [?] a much more general traverse than is shown on the plan; the want of water, too, as a secondary cause, confines the traverse in some measure to the line of the villages.

Of the passage across the Moodgul Circar from the Toongabhudra to Kistna.

Of the communications through the Moodgul Circar not intersecting either of the rivers.

General observations relative to the traverse of the Moodgul Circar.

In Kanacgerri a few hills and some jungly wastes confine the traverse to particular lines, but these, as shown in the plan, are so numerous as to make the traverse sufficiently general; the soil being red the roads are good. In Gungawutti the mountainous tract about Annagoondi necessarily confines the traverse of the district to particular lines; the principal roads between and crossing the ridges of mountains are all marked on the map; those leading between the ridges are pretty good, that passing from Gungawutti by the great and Little Bennukulloo, by Yamyegoodda, and the two Indrees is carriageable, that from Gungawutti to Annagoondi and thence by Timmapoor, Iwudia and Siwapooram is also a good but not carriageable road; the other roads marked on the plan nearly parallel with those are but indifferent, passing too much over and amongst the hills; the road crossing the ridges by Sanapoor, Nilsunkigoodda, Chhote, Bennikulloo and Bunderhal is practicable to cattle, so is also that which passes a little west of the above from Urulapoor to Kullikoomut. The Copal district is so open and free of obstacles as to be very generally traversed; it is mostly of red soil east of the Shindugi nulla, and black to the west of it except towards the Toongabhudra. Yelboorga and Kookunoor have so much waste towards the western frontier as to be in that part a good deal confined, but in the better-inhabited parts there is a general traverse. Kooshtugi has a good deal of waste and jungle upon the higher parts of the large ridges, which therefore can be crossed only in particular places, but these places are so numerous as to leave the country sufficiently open to obviate all inconvenience. The hilly tract lying between Moodgul, Sunta, Keyloor, Mooski and Tawurugerri is traversed by the following roads:—Tawurugerri to Moodgul two, *viz.*, one by Ketardoni, having a great circuit to the west, the other direct by Killaruhutti; but this last is through such a waste that from fear of wild animals, and no less of the retainers of the Dessyes of Menuduhul and Meddakunahal, it has long been abandoned, and is now nearly overgrown with jungle; the former, though circuitous, is the one more frequented. These are the proper communications between Kanacgerri and Moodgul. A third road leads from Nagulapoor to Menuduhul, and is the communication between Moodgul and the Bellary districts. Another route leads from Mooski to Moodgul, and this is also very good; besides these there are numerous paths leading in all directions amongst the jungle, hills and rocks of this tract. The wall of heights extending from the Kistna along the eastern frontier has been remarked on, and all the passes down it particularized in the memoir of the Raichoor Circar, and need not therefore be further mentioned in this place.

SOIL, PRODUCTIONS AND MODES OF HUSBANDRY.

Soil is either of the black or red kind; the distribution of these different kinds, has been noticed under the 7th head of this memoir, and need not be further dwelt on in this place.

Productions.—The chief productions are juwari and bajri, which grains are the staple articles of food throughout the district; sufficient for the consumption of the inhabitants is therefore sown nearly in every place, but somewhat more where the soil is red, and somewhat less in some places where it is black; the excess in the former case is sold in the neighbourhood of the river in exchange for rice and garden articles, and, where there is a deficiency of these articles from black soil, in exchange for money, cotton, chenna and wheat. The total quantity produced is more than sufficient for consumption in the district.

On the red soil a great number of other grains are intermixed with the juwari and bajri, as moong, bulloor, toor, sobay, umbode and moat, and in a less degree yerrindi and coolti; but the yerrinda and teel oils and coolti are often sown separately—that is, in fields by themselves or unmixed with other grains. The advantage of sowing the several mentioned grains in the same field is—1st, because the higher grain affords a protection and support to the other grains, of which several are of a description of creeper; it also enables the surface to rear a greater quantity of grain than would be practicable with only juwari and bajri, the growth of which would be choked if sown too near; labour and expense are thus

economized ; also if the season proves unfavourable to one kind of grain it will be favourable to another.

At Kanacgerri, Gungawutti, Copal, Yelboorga, Datihal, Hanumsagur and Moodgul there is in favourable years a great sale of most of the foregoing grains, especially coolti ; sobey is sown in various parts of the Kooshtugi and Kanacgerri districts, sometimes mixed with teel and toor, but often by itself ; a coarse kind of paddy called coorigi nelloo, or drill plough, is also sown ; on the black soil red juwari and hajri are never sown in greater quantities than barely sufficient to answer the demands of the inhabitants themselves ; the lands are for the most part reserved for the season of late crops, which consist of white juwari, cotton, chenna and wheat ; the proportion of white juwari is influenced by the success of the early crops of red juwari, and is usually sown to an extent that is likely to produce something more than sufficient for home consumption. Cotton is regarded as the grand article by which when converted into money the claims of the Sirkar are to be satisfied, and is therefore extensively sown, to an extent perhaps of near one-third of the lands. Chenna and wheat are sown in such proportions as the state of the markets suggests to be advisable ; except in the districts of Rowdicoonda and Sindunoor, where the soil is almost entirely black, there is such an intermixture of red and black soil that all the grains more fitly produced in the red soil are reserved almost exclusively to it, so that few grains are intermixed in the black soil with those above mentioned. Kungini in double rows between every two rows of cotton is the most usual, but is not here so frequent as in the Raichoor districts.

The paddy cultivation on the banks of the Toongabhadra river where it is irrigated by conduits from the river itself produces two crops. Those small spaces of wet cultivation upon the banks of the small nullas as shown in the plan produce but one crop in an ordinary season, but two if the season proves particularly favourable, especially those upon the lower parts of the nullas, where the supply of water is less precarious than in the higher parts ; these spaces are mostly irrigated by small conduits brought from the higher parts of the stream.

A small quantity of sugarcane is sown upon the banks of the large rivers, and muku, jowlu, or Indian corn upon the banks of some of the lesser nullas and in the immediate neighbourhood of villages.

Ginger and *Saffron* are produced in small quantities at Hooligi, on the banks of the Toongabhadra, and in a less degree at several other villages on the bank of the river. *Cocoanuts* are also produced at Hooligi.

Tobacco, sufficient for the consumption of the inhabitants, is cultivated in small gardens close to the villages, as are also red pepper and onions and the various vegetables and potherbs included under the general name of *turkari*.

Mode of Husbandry.—This has been described in the memoir of the Raichoor Circar, which see.

POPULATION—INHABITANTS.

No numerical account of the population has been attempted, but its scale is on the whole very low ; in the Sindunoor, Rowdicoonda and Kanacgerri districts it is particularly so, and has long been in that state, a great number of the villages being entirely ruined and even lost. In the Moodgul district it is at present very low, but this is of such recent occurrence that under the encouragement now given it may recover. In Tawurugerri there is a partial completeness in the population at the expense of a more general deficiency, that is, the encouragement of immunities, and the fear induced by the experience of depredation and threats, have caused a somewhat general desertion of the Sirkar villages in that district and places immediately bordering it, and a pretty full population in those of the Dessyes and Merasdars. Gungawutti, Kooshtugi and Yelboorga have a rather deficient population, though much less so than the three districts above mentioned. Copal is, on the whole, the best populated ; but even there the population is but small.

The great body of inhabitants are Lingaits, Mahrattas and Beyders. The former are the most numerous, and comprise the class of landholders, farmers, and traders, with some military and many labourers. The Mahrattas are landholders,

farmers, labourers, and military. The Beyders comprise the military and labouring classes. Most of the great Merasdars are Brahmins, as are also most of the village and district officers, as Koolkurni, Desmook, &c. Amongst the permanent military as distinguished from the militia (who, as already remarked, are chiefly Beyders and Mahrattas) there are a great number of Moosulmans, Mahrattas, and some Beyders. The body of Dhers is but small, and is considered quite inadequate to the demand for their services.

The condition of the inhabitants in general is but indifferent ; there is, however, a more gradual scale of rank and condition than is everywhere found, owing perhaps to the little opportunity of any one gaining, or the impolicy of any one admitting the show of, a scale of opulence that raises him to any great elevation above his neighbours. All the traders, for instance, are on that moderate scale where each, without the intervention of factors, makes his own bargains with the ryot, or makes himself those humble purchases for which opportunity occurs at the weekly markets ; instead, therefore, of the trade being in the hands of a few rich people, it is divided out amongst a great number in circumstances of mediocrity, of whom some carry the trade to its ultimate destination, as the cotton and thread to Wallajahpet, cloths to Hyderabad and other large towns north of the Kistna, while some, whose means or conveniences do not permit such distinct communications, dispose of them as factors to intermediate purchasers, or deal in articles more of a home trade.

The farmers stand much on the same ground ; the greatest proprietors seldom cultivate the whole of their lands themselves, but let it out on leases, the terms of which, being as low as possible, induce the most respectable people to hold the farm, each taking what his stock enables, from a competency of two or three ploughs, to the poor man who borrows stock to cultivate some remote or unprofitable spot, not worth the notice of those who can command better terms. The militia, that are established all over the country, with exemptions of different degrees for military services, are a great body, and of a character intermediate between the proprietor and labourer. The exemptions are much greater towards the tenants of the different Dessyes and great Merasdars than to the Sirkar tenants, the former proprietors feeling themselves dependent, and obliged therefore to conciliate and gain the attachment of their tenantry, while the farmers or managers of the Sirkar property exact all they can during the uncertain period of their rule, and, having little or no check over them beyond their own consciences, often deal hardly and even cruelly towards the ryot, who under any failure in the seasons see no alternative between a prison and the abandonment of his house, which being generally preferred at length sensibly affects the extent of the population ; the feuds, too, amongst the different Merasdars and Poligars in their claims of russiaoms often expose the fields, and even the house and person, of the peaceable ryot to much danger. The demands of the Sirkar for labour without any remuneration is also a source of great evil. But the root of all evil is the want of laws and of a power to enforce their observance ; there is such an entire absence of both that confidence nowhere exists, and every one living in a state of apprehension is also in a state of resistance to the utmost in his power, from the Dessye who points his guns on the Sirkar troops to the poor man who is ready to fly beyond the frontier.

Lingaits, Mahrattas and Beyders, though they form the great body of the people, are by no means the only castes ; most of the great Merasdars, as district and village officers, are Brahmins. There are also many Brahmin families possessed of small estates, others belong to the different kutcheries, or are in the service of different chiefs as writers, mootsoodies, accountants, vakeels, &c. The number of Moosulmans though comparatively small is in the total rather great.

Of hill or other peculiar tribes there are none.

The colloquial language is Canarese exclusively ; Mahratta is known to a few, and is the language in which some of the kutcheri books are kept ; almost all the village officers, such as koolkurnees and many of the patels, are acquainted with Hindoostanee.

MEMOIR OF A PORTION OF THE KUMMUMMETT CIRCAR
 COMPRISED WITHIN $17^{\circ} 2'$ AND $18^{\circ} 15'$ OF N. LAT. AND
 $80^{\circ} 20'$ AND $81^{\circ} 30'$ OF EAST LONGITUDE.

This portion of the Kummummett Circar is bounded on the north and east by the Godavery river, on the west by Worungal Circar and a portion of the Kummummett Circar already surveyed and described, and on the south by the Ellore and Rajahmundry Collectorates; it contains a superficial area of about $3,307\frac{1}{4}$ square miles, of which $115\frac{1}{4}$ is cultivated with wet grain, $159\frac{3}{4}$ with dry grain, and the remainder, $3,032\frac{1}{4}$ square miles, consists of hills and slopes generally overrun with jungle. It includes within its limits three pergunnahs, viz., Kunnigherry, Hasanabad and Sunkragherry, all deriving their names from towns that were formerly their respective kusbahs, and were then of some size and consideration, but have long since fallen into decay, and the kusbahs have been transferred to other and more thriving towns.

Pergunnah Kunnigherry.—This pergunnah consists of 150 principal and 71 subordinate villages; of these 46 are totally ruined and deserted. Kulloor, the present kusbah of this pergunnah, is situated in lat. $17^{\circ} 12' 30''$ and long. $80^{\circ} 35' 30''$. It is the residence of a Naib, and contains from 80 to 100 dwelling-houses, and has a small bazaar; the ruins around the present town denote its former superior size and opulence; the town is enclosed by a mud wall, and a market is held on Tuesdays.

Chundragoonda, situated in lat. $17^{\circ} 24'$ and long. $80^{\circ} 40'$, is the kusbah of a subordinate talook or subdivision of the pergunnah, and the residence of a Despondeah, or person appointed to co-operate with the Naib in the management of all affairs appertaining to this portion of the pergunnah; it contains about 70 houses, 8 bazaar shops, and maintains 6 weavers' looms; it is distant from Kulloor in a direct line 14 miles, but from the hilly nature of the country the road distance is about 22 miles.

The following are the principal villages in the Kunnigherry pergunnah:—

Sirpoor, a zemindary village of about 80 houses and 15 bazaar shops, is situated on the left bank of a small stream (the Yedlavag); it has two considerable tanks, affording a sufficiency of water to irrigate a very extensive tract of rice cultivation, enabling its inhabitants, principally Bunnias, to carry on a profitable trade in grain with the surrounding villages.

Annargoodium, Thadlapenta, Gourarum, Budda Goompana, Tooloorpad and Papkoal lie in the vicinity of the Kunnigherry hills, and are composed of from 30 to 40 houses each, but contain nothing remarkable.

Kundkoor, a large village, consists of about 300 houses, 6 bazaar shops, and a pagoda of some size and celebrity, and provided with accommodation for the numerous pilgrims and others who resort to it during the celebration of its annual festival.

Vaimsoor, near the trigonometrical station of the same name, is a large village of about 500 dwelling-houses and a moderate-sized bazaar; the trigonometrical station, which is situated about a mile and a half westward from the village, is situated on a hill from which iron ore of good quality is produced, and the privilege of smelting and disposing of which rests exclusively with the inhabitants of Vaimsoor.

Pergunnah Hasanabad.—This pergunnah is divided into 13 summatts or talooks, comprising in all 212 principal villages. Paloونها, the present kusbah, situated in $17^{\circ} 35'$ N. lat. and $80^{\circ} 44'$ E. long., is of small extent, though formerly a large and populous town; the small ghurry attached to the town is garrisoned by a Naib and 30 Sebundy peons.

Talook Avalee or Paloونها.—This talook consists of 30 principal villages, but with the exception of the kusbah above mentioned they are all small and insignificant.

Talook Nugrum contains 10 principal villages. Nugrum, situated in lat. $17^{\circ} 38'$ N. and $80^{\circ} 54'$ E. long., is the kusbah of this talook, and was formerly a

place of some importance, and the residence of a wealthy and influential Zemindar. The present town, which consists of about 100 houses, is situated on the right bank of the Kinnarsanny river, about 2 miles west of its junction with the Godavery. Of the remaining villages of the talook, Boorgamulpaul, Naganainpole, Sarapak, Motey and Palaram are the only ones of any size, containing from 50 to 70 houses each.

Talook Nellipak is composed of 10 principal villages, including the kusbah Nellipak, which is situated in $17^{\circ} 46'$ north lat. and $80^{\circ} 55'$ east long.; the whole of these villages are small, being mere hamlets, the kusbah itself not numbering more than 70 or 80 houses. Toomulcheroo, though of small size, may be mentioned on account of the large tank attached to it, and which irrigates a very extensive tract of rice cultivation. A small hill in the bed of the tank affords iron ore of very good quality, large quantities of teak and other timber are cut in various parts of this and the Murkoad talook and generally collected at Nellipak, from whence it is floated in the form of rafts to Masulipatam at the proper season.

Talook Murkoad consists of 14 principal villages. Murkoad, the kusbah, does not contain more than 50 houses, and the remaining 13 are so small and wretched as scarcely to deserve the name of villages. The inhabitants are generally employed in felling teak, which grows in the greatest luxuriance and perfection in this talook.

Talook Butpully contains 17 principal villages; the whole with the exception of Byarum are too small to deserve mention, Butpully, the kusba, situated in lat. $18^{\circ} 2'$ north and long. $80^{\circ} 37'$ east, being equally so with the rest. Byarum, where the naib resides and the business of the cutcherry is transacted, is situated on the right bank of the Godavery, and is principally inhabited by Bunias and other traders, who supply the surrounding villages with grain and other commodities.

Talook Ramanjiram contains 23 principal villages; of these the kusbah, situated in lat. $18^{\circ} 1'$ north and long. $80^{\circ} 37'$ east, and Munganoor, are the only two deserving mention, being both moderate-sized villages; the country around the latter is open, and for a considerable extent under a high state of cultivation, principally of dry grain.

Talook Ashwapoor consists of 12 villages, all (including the kusbah, situated in lat. $17^{\circ} 51'$ north and $80^{\circ} 52'$ east long.) with the exception of Mulloor miserably poor and insignificant. Mulloor is a moderate-sized village containing about 250 houses and a street of 8 or 10 bazaar shops. There is also a pagoda of some size and importance attached to the town.

Talooks Allapully and Goondalla.—These talooks are incorporated together and under the management of the same naib; the kusbahs alone are deserving of mention. Allapully is situated in lat. $17^{\circ} 50'$ north and long. $80^{\circ} 31'$ east; it consists of about 100 houses and a small bazaar, and has several considerable tanks, from which a large extent of rice cultivation is irrigated. Goondalla, a moderate-sized village of about 100 houses, is situated in $17^{\circ} 56'$ north lat. and $80^{\circ} 22'$ east longitude.

Talook Cherlapully and Talook Motey.—These talooks, Cherlapully and Motey, consist of 12 and 16 villages each, but all small and wretched, the two kusbahs consisting each of about 15 huts, and the subordinate villages being, without any exception, in a still worse condition; their management is entrusted to the naib of the Mungapett Talook.

Talook Mungapett contains 7 villages, including the kusbah, Mungapett, situated on the highroad from Masulipatam to Nagpore in $18^{\circ} 15' 15''$ north lat. and $80^{\circ} 34' 39''$ east long. The town is moderately large and may contain about 500 houses; it has a well-supplied bazar. A naib with a garrison of 100 irregular infantry resides in the ghurry.

Pergunnah Sunkragherry.—This pergunnah, consisting of 83 principal and 47 subordinate villages, is divided into three talooks, viz., Ashwarowpet, Thakoor, and Dummipett. Ashwarowpet, the kusbah of this pergunnah, is situated in lat. $17^{\circ} 15'$ and long. $81^{\circ} 11'$ near the eastern frontier and bordering on the Ellore collectorate. It was formerly a very extensive and opulent town, and at present

contains a population of about 800 families. It is the residence of a respectable Zemindar who occupies the ghurry, a neat and strong stone structure of 100 yards square, and maintains at his own expense a retinue of 100 Sebundee peons, besides a few horse. The entire pergunnah and other adjacent parts of the country originally belonged to him; but the Nizam's Government have at different times, and on various accounts, alienated the greater portion of his estates. The kusbah is the only town of any size or consideration in the Ashwarowpet talook.

Dummapett Talook.—Dummapett, in lat. $17^{\circ} 16' 30''$ and long. $81^{\circ} 3' 30''$, the abode of a Zemindar, and kusbah of 29 principal and 17 subordinate villages, is situated on the highroad from Masulipatam to Nagpore. It contains from 200 to 250 houses and 15 bazar shops, and maintains 12 weavers' looms. There is a large tank, and a considerable extent of wet cultivation, immediately south of the town; the remaining villages of this talook are small and insignificant.

Thatkoor Talook consists of 50 principal and 6 subordinate villages. Thatkoor, the kusbah, and residence of a Naib, is situated in lat. $17^{\circ} 31'$ and $81^{\circ} 18'$ east long., 3 miles S. E. of Roodrunkota station and $1\frac{1}{2}$ miles west of the Godavery river, in the midst of an extensive tract of dry grain cultivation. It consists of 500 houses and 12 bazar shops, and holds a market weekly on Friday. Its subordinate, Velbeiroo, which is contiguous to it, is likewise of considerable size. The following are the only villages in this talook of sufficient size to require particular mention :—

Pogullapully, a moderate-sized village on the Nagpore road, contains 8 or 9 bazar shops.

Moolkalapully, a zemindary village subordinate to Thatkoor, and kusbah of 14 principal villages, consists of about 150 houses and 6 bazar shops, but contains nothing meriting observation.

Roodrunkota, also subordinate to Thatkoor, stands on the bank of the Godavery river, a mile west of its junction with the Suttoo-vag, and 6 furlongs east of the trigonometrical station. It is the kusbah of 21 villages, and contains from 150 to 200 houses and 4 bazar shops; the remaining villages subordinate to it are very small and generally in a ruinous state. The plundering incursions of a noted robber of the name of Bopatee, whose haunts are somewhere in the adjoining Circar of Warungul, tend not a little to keep them in this depressed and wretched state.

Rivers.—The Godavery, which flows along the northern and eastern boundary of the portion of the Kummummett Circar now under description, first touches it at a point about 4 miles N. W. of Mungapett station, from thence it pursues a south-easterly course for a distance of about 22 miles, to Tippiaram, from whence its breadth is greatly increased, and continues so for 6 or 7 miles, in some parts presenting a distance of full 2 miles from bank to bank, with numerous small islands, in its bed; about 4 miles north of Ruttumgatt station it assumes a southerly course, and pursues the same for about 20 miles, to Budrachellum, where it again takes a direction to the south-eastward, and after a tortuous course of about 30 or 40 miles quits the Circar and passes into the Rajahmundry Collectorate at Kankee Hissanoor. The bed of the Godavery throughout its course along this portion of the Circar is in general sandy, with high and precipitous banks averaging from 50 to 60 feet above the ordinary level of the stream. During the hot months it is shallow and fordable at most points, but in the monsoon presents an immense volume of water flowing with a strong and rapid stream. Boats are always procurable at the different ferries.

The Kimmersanny enters the Circar from Warungul in lat. 18° and long. $80^{\circ} 22'$, and is joined by the Yedinakul-vag after a south-easterly course of about 5 miles, and by the Rala-vag 2 miles beyond. After a further course of about 10 miles in the same direction it receives the Jullair; continuing on in the same direction for a distance of about 30 miles it is joined by the Kurka-vag. About 7 miles beyond this point the stream separates, and the two branches, passing round an island of a triangular form and of an area of about 2 miles, unite again, the southern branch increased in volume by its junction with the Moor-air; from thence a north-easterly course of three miles to Boorgamulpaud, where it empties itself into the Godavery.

Lakes, Tanks, Reservoirs.—The tanks are numerous in this portion of the Circar, and some of them very extensive but generally shallow, and not retaining water for a larger period than 6 or 8 months in the year. Those, however, belonging to Kulloor, Byaram and Toomulcherroo are exceptions, being very capacious and yielding water throughout the year.

Mountains, Hills, &c.—A range—or rather continued groups—of hills, of considerable elevation, extend along the northern and eastern portion of this section of the Kummummett Circar, stretching from north-west to south-east parallel with, and about 8 or 10 miles distant from, the Godavery. A comparatively open interval or break in the range, of about 10 miles in breadth, occurs in the centre of the chain through which the Kinnersanny, the Yedla-vag and the Pamalier rivers pursue their course to the Godavery. The southern portion of the range as it approaches the Godavery towards the south-eastern boundary of the Circar assumes a table-like form and is everywhere covered with a dense forest. Another but smaller range and of a less continuous character extends across the centre of this section of the Circar in a line nearly parallel with the range above mentioned, the interval between them forming the valley of the Kinnersanny; small detached groups of hills are also scattered over the whole area of this portion of the Circar.

Cattle and Animals.—Tigers, bears, leopards, hyenas, jackals, bison, elk and antelopes are common in the jungles, and, in addition to the ordinary domestic animals, numerous herds of half-wild cattle are maintained in this as in the other portions of the Circar. These animals are kept exclusively for the purposes of breeding, and are allowed to roam throughout the extensive jungles of the Circar, selecting their own pasturage, and attended by their keepers, who, however, exert no control over the movements of these immense herds, but remain with them in the jungles at all times and seasons, a small country blanket their only protection against the inclemencies of the weather. During the hot months vast numbers collect in the vicinity of the Parkal Lake, in the adjoining Circar of Warungul, where they are not inconvenienced by the drought that then prevails in the other parts of the district; on the usual indications of the approach of the rainy season, as if actuated by a common impulse, they again spread themselves over the face of the country; but should appearances betoken the failure of the usual rains they remain in the neighbourhood of the lake throughout the year.

Roads, Passes and Defiles.—The principal road through this Circar is the high-road from Masulipatam to Nagpore via Ashwarowpett, Dummappett and Mungappett, where it quits the Circar. It is well calculated for wheeled carriages, and is occasionally traversed by detachments of troops. Another good road extends from Palooncha to Hyderabad by Warungul and Bongheer, and is also practicable for wheeled carriages. There is also a very tolerable trading road from Kulloor to Hyderabad.

Mines, Minerals and Manufactures.—The Vainsoor and Toomulcherroo hills alone produce iron ore. The only manufactures are coarse cloths and a kind of arrack extracted from the flower of the Mowrah tree (*Bassia longifolia*), which grows abundantly in the jungles of the Circar.

Soil and Productions.—The prevailing rock is granite with occasional masses and dykes of greenstone; in the neighbourhood of Kulloor large nests of mica are found embedded in the first-mentioned rock; the soil on the hills and slopes is generally stony and unproductive, but the valleys are filled with a rich black vegetable mould. The principal productions are rice, jowarry and a small quantity of sugar-cane and tobacco. A considerable traffic in teak and the wood of the yapa tree is also carried on with Masulipatam and Hyderabad.

Population.—The inhabitants of the larger towns and villages are Hindoos, with a very small proportion of Mahomedans, but the great majority of the population are Gonds, a depressed and miserable race, whose principal means of subsistence consists of yams, roots, and other productions of the jungles; when procurable they do not object to animal food of any description, not even excepting the flesh of the cow, though they consider themselves to be, and are acknowledged as, Hindoos.

Miscellaneous.—The only objects, natural or artificial, requiring description but not coming within the meaning of any of the preceding articles are the hot springs at the small village of Boogah, and in the bed of the Godavery near Budrachellum. At the first-mentioned place the spring, which is walled round with masonry, presents a constant bubbling motion and is some degrees warmer than the atmosphere; it probably never varies much in its temperature, though from the greater difference between it and the atmospheric air during the cold season the natives erroneously suppose that it is greatly increased. The spring in the bed of the Godavery presents the same phenomena, but is only to be discerned when the river is unusually low. The ordinary temperature of both springs may be about 90°.

(Signed) H. MORLAND, Captain,
In charge Hyderabad Survey.

KUMMUMMETT CIRCAR.

Area.—The portion of the Kummummett Circar included in the present survey comprises an area of 1,533½ square miles, of which 84½ are of wet cultivation, 377½ of dry grain, 47 of hills, and 979½ of slopes covered with jungle.

Villages.—Kummummett, the kusbah of the Circar, consists of a droog, a lower fort skirting the foot of the droog on the west and N.W., and an open pettah almost entirely around them. There are no dwellings on the droog. The lower fort may contain about 130 houses, and the pettah about 400. The rampart of the lower fort is about 15 feet thick, and the facing is composed of large blocks of granite. The southern face was strengthened under French superintendence, and has a brick and chunam parapet with regular embrasures and as low as in regular works; the rest of the walls are high and by no means judiciously planned. The lower fort is capable of mounting about 60 guns; although it is much to be doubted whether a single round would not demolish the greater part of the rampart, as it is in many parts crumbling of its own accord. There is a Killadar for the purpose of taking care of the works. However, it appears to be completely neglected. There are still a few pieces of ordnance, viz., iron and cast iron 12-prs. and brass howitzers of small calibre.

This is the residence of an Amildar who holds the kutcherry here. This village was about 20 years ago upwards of twice as large as it is at present. There is here a very equal proportion of castes—Brahmins, Mussulmans, Telingahs, Pareahs, &c., &c. Khanapoor was originally the kusbah, and Kummummett was a fort built for the confinement of offenders. However, continuing to increase from the security offered by its walls, it gradually attained the height before mentioned, becoming at the same time the kusbah of the Circar; it is the largest and most important place within the present survey.

Nealla Condapilly is a large and thriving village consisting of about 350 or 400 houses. It is the kusbah of the pergunnah of that name; being the residence of the Amildar he holds his kutcherry here.

Rajeshwarpoorum consists of about 300 houses.

Pachimcherlah consists of about 200 houses, and is the residence of the Deysmook of the Anantagerry pergunnah. The streets are regular, and the village has a cleanly and superior appearance.

Moodegonda, Pummey, Madhawarrum and Gundashree are each the residence of a Deysmook, and consist of from 150 to 200 houses.

Chenteral, consisting of 150 houses, Rebella of 40, Uddaloor 100, Vellatoor 150, Maddaree 100, Wujunapully 50, and Booramadawarrum 30 houses, are each the residence of a Zemindar.

Vennawarrum, Hydershaipett, the kusbah of the pergunnah, Poorsuthamma-goodeam, the residence of a Zemindar, Soobaveed, Marpaddy, Chilkoor, Pedda, Mundawa, Kulcotta, Motamurry, Malacherroo, Reyoor, Kakeroy, Beeroal, Koosmoonchy and Teetulpad each contain 100 to 150 houses; and Kodadoo, Goodeebunda, Kapookull, Tullumpud, Gunnapoorum, Kundybunda, Wutlaby, Mator, Dindakoor, Meenavaol, Chiuna, Mundawa, Doondapully, Chintapolliam, Yerrapolliam and Mamoonoor each consist of from 50 to 60 houses. Yerroopolliam is

the residence of an Ameen of the Muddaree pergunnah. The rest are small and hamlets.

Tanks.—The Kodadoo tank is one of the largest and deepest in this tract. It contains water throughout the year and nourishes a large extent of paddy. The Madhawarrum tank is also very large, and retains water for 8 and sometimes 9 months of the year. The tanks at Soobravat, Kondiagood, Chintakawny, Kullakotta and Muddaree are also capacious and retain water in ordinary seasons for 8 months; the rest are small.

Rivers.—The Pall-air traverses a considerable part of the western portion of this Circar in a south-easterly direction. Through its whole extent it is of little or no use to the tract through which it flows. It is about 100 yards wide.

The Moony-air enters this survey from the north, runs 12 or 14 miles in an E. S. E. direction, when it is joined by the Boogah, and suddenly takes a general southerly direction, which it preserves till it quits the boundary. The Moony-air is an outlet of the Pakaul Lake, and has more or less water throughout the year. Its average breadth may be about 150 yards. Its bed is sandy and occasionally rocky, and its banks abrupt. Its depth when highest seldom exceeds 8 or 10 feet. The Wyra- and Kultel-air both rise in the Kuloor hills, and flow in a southerly direction through the whole extent of this Circar. The former is about 80 yards broad and the latter about 30; their beds are sandy and in some places rocky.

The Kistnah forms the southern boundary from the Devercondah Circar to the village of Moogteal, and is the general receptacle of all the streams flowing through this Circar. It is nearly of an uniform breadth of $4\frac{1}{2}$ furlongs; its banks are high and steep, and when full generally from 16 to 20 feet deep.

Hills.—The commencement of the Kuloor hills will be observed in the N.E., and part of the Joojoor hills in the south-east, of this portion of the Circar. They are high and covered with jungle approaching to forest. The Wullaby hills between Lingagerry and Moonagull, and the Julpully cluster on the north-west, are low, rocky, jungly tops.

Cultivation.—The proportion of cultivation to waste land is nearly the same in the aggregate with the Nelgoonda Circar, but with this difference, that the former has a larger quantity of dry, and the latter a greater quantity of wet cultivation.

Population.—The number of souls to a square mile in this Circar may be estimated at 30.

Droogs.—The only droogs in this portion are those of Kummummett and Anantagerry. Kummummett is in good repair, has a watch-house, flagstaff and two signal 12-pounders. It is taken care of by the killadar of the lower fort. It consists merely of a single granite wall encircling the summit of a high precipitous hill.

Anantagerry is a rocky hill with a double wall encircling its summit; there are still to be seen the remains of a granary and ghee reservoir. There are also two reservoirs of water on the S. E. side of the hill near the top, constructed by throwing a strong stone and lime wall across a fissure in the rock, which would contain a considerable quantity of water. This droog is accessible on the N. and N. W. sides.

Roads.—The road from Hyderabad to Masulipatam enters this Circar from Munagull; the road from Hyderabad to Kummummett and Masulipatam passes through its whole extent from W. N. W. to E. S. E. These are the only roads passable by wheeled carriages; the others are footpath communications from village to village.

Insulated portions.—The small insulated portions of the Warrungull Circar comprise an area of 14 square miles, of which $\frac{1}{2}$ square mile is dry cultivation, and $13\frac{1}{2}$ of slopes covered with jungle.

The portion of Bhonagheer Circar contained in the present survey is insulated in the Nelgoondah Circar, and comprises an area of $16\frac{1}{4}$ square miles, of which $2\frac{3}{4}$ square miles are of wet cultivation, 2 square miles of dry cultivation, and $11\frac{1}{2}$ square miles of slopes covered with jungle.

**GEOGRAPHICAL MEMOIR OF THE CIRCAR OF DARROOR, OF THE
SOUBAH OF AURUNGABAD, IN THE DOMINIONS OF
HIS HIGHNESS THE NIZAM OF HYDERABAD.**

Its Situation, Extent and Boundaries.—The Darroor Circar, which is situated between $18^{\circ} 25'$ and $19^{\circ} 6'$ N. latitude, $75^{\circ} 55'$ and $76^{\circ} 49'$ E. longitude, is bounded on the north by the Bheer Circar and the Godavery river, on the east and south by the Nandeir Circar, and on the west by the Bheer and Purrainda Circars. The mean breadth from east to west is $30\frac{1}{2}$ miles, and the mean length from north to south 50 miles, comprising a superficial area of 1,525 square miles, occupied as particularized in the following table :—

Dry grain. 753.5	Wet grain. 1	Hills and slopes. 380.5	Waste. 390
---------------------	-----------------	----------------------------	---------------

Divisions.—The Circar is divided into 7 Pergunnahs—

1 Havalee	4 Sirsalla
2 Ambah	5 Pawnair
3 Burdapoor	6 Sailgaon
7 Purley	

Besides these there are four talook kusbahs—Ghat Nandoor, Pangaon, Reynapoor and Kurvulla—with their respective subordinate villages.

1. Darroor, the capital of the Circar, is situated on the high table-range that extends eastward from Ahmednuggur. It is a large and populous town on the dak road from Hyderabad to Aurungabad, and lies in N. latitude $18^{\circ} 48' 24''$ and E. longitude $76^{\circ} 9' 31''$. Its manufactures consist of cloth and coarse cummuls or blankets, and the bazar contains about 60 shops and butchers' stalls and has four resident sowcars. The Naib resides at Kullum, and transacts all the business connected with the town. The market, which is weekly, held on Monday, is well attended. There are two pagodas within the town, at each of which an annual feast is held, which lasts five days. Ameer Navaz Jung, the Munsubdar of Nuldroog and Bheer Circars, has charge of this Circar also. The fort of Darroor stands about a furlong west of the town on the edge of the table-land ; it is of an oblong form and the walls are strongly built of stone ; it is also surrounded by a wet ditch of considerable depth ; the works are in good repair, but the few cannons mounted on the ramparts are old and unserviceable. A killadar resides in the fort, and the garrison consists of a few irregular infantry.

Sub-Divisions : 1, *Havalee Pergunnah.*—The Havalee pergunnah consists of 106 principal villages, and is subdivided into 3 kusbahs, viz., Darroor kusbah containing 47 villages, Kaij 31, and Undoora 29 ; of these 14 villages are in jagheer.

The only places of note in the Havalee pergunnah besides Kaij and Undoora are Kullum, Yeeda, Mohor and Tomboa.

Kullum, a large trading town, contains about 2,000 houses, where the Naib of Darroor holds his kutcherry ; it is held in jagheer, and stands on the right bank of the Manjera river, on the highroad from Sholapoor to Darroor. Several opulent sowcars and bunniahs reside in the town, and carry on a considerable traffic with Bombay, Poonah and Hyderabad in cotton and cloths of various textures, sugar, spices, &c. There is a pagoda of some size within the ghurry, but it is at present in a very neglected state. A weekly market is held on Mondays for the sale of cattle and commodities of various descriptions.

Yeedah and Mohor are large villages consisting of from 400 to 500 houses and 10 or 12 shops. The former place has 7 dependent villages under it, and is the residence of a Zemindar.

Tomboa, a tunka jagheer, is remarkable only for its ghurry, which is strongly built of stone, the village itself being of ordinary size.

2. *Ambah Pergunnah.*—Ambah, otherwise called Ambah Joghee, has 4 subordinates, and stands on the same line of ghaut as Darroor. It is an irregularly constructed town of about 3,000 houses, with a citadel at the S. W. angle, and is the kusbah of the pergunnah. A large pagoda, consecrated to Joghee, is situated near the town, at which a festival is celebrated annually, which lasts for a fort-

night. The market days are Tuesdays, Thursdays, Saturdays and Sundays. West of the town lies the cantonment of the Nizam's Reformed Horse, of which there are two brigades, officered by Europeans. Several commodious and elegant bungalows are erected south of the lines, with spacious gardens, in which various kinds of fruit are produced, amongst them apples, strawberries, and grapes; the latter are very abundant, and a very fine variety, the Hubshec or Abyssinian grape, is produced in considerable quantities. Europe goods of almost every description are vended in the small shops kept by Borahs from Bombay.

The principal villages of the pergunnah are Chennai, Bautana, Kodree, Diggool, Baruz and Radee.

Chennai, $1\frac{1}{2}$ miles distant from the cantonment of Mominabad, is a large and thriving village.

Bautana is a considerable village in which a sugar manufactory is established.

Kodree, Diggool and Baruz are villages of some importance from the quantity of toddy derived from the date groves in their vicinity.

Radee has three bazar shops and contains about 200 houses.

3. *Burdapoor Pergunnah*.—Burdapoor, kusbah of the pergunnah, contains 24 villages, 8 of which are in jagheer; it is a tolerably large town and lies on the highroad from Hyderabad to Ambah. A market is held weekly on Fridays. The bazar is extensive and the town appears to be altogether in a flourishing condition.

There are no other villages of any importance in this pergunnah.

4. *Sirsalla Pergunnah*.—Sirsalla, the kusbah of the pergunnah of the same name, is a small enclosed town of about 500 houses with a mud ghurry attached. It has 37 principal villages under it and has a market on Fridays. Cummuls are the only article of manufacture. The other villages in this pergunnah are small and insignificant, some of them consisting of 2 or 3 huts, and the largest not exceeding 40.

5. *Pownair Pergunnah*.—Pownair contains about 300 houses and is the kusbah of 25 principal villages. It is situated on the right bank of the Godavery river; there is a pagoda in this village, but it contains nothing else worthy of remark.

6. *Shailgaon Pergunnah*.—Shailgaon, the kusbah of a pergunnah of 48 villages, is a small village of about 250 houses and the residence of a Naib; it has 8 bazar shops.

Digwal, situated on the right bank of the Wan river, is the residence of a Deshmook and consists of 500 houses; about 50 weavers and dyers reside in the village, and it has 6 bazar shops.

Dhamon contains 200 houses; a large quantity of toddy is extracted from the extensive date groves in its vicinity.

Torrila Hookly holds market on Fridays; contains 8 bazar shops and 250 houses.

The remaining villages of the pergunnah are very small.

7. *Purley Pergunnah*.—Purley is a rich and populous town of about 1,500 houses, has 12 subordinates, and is in jagheer to Ruft-ul-Moolk, a nobleman of the city of Hyderabad. It is situated about 14 miles N. E. of Ambah, at the base of the ghaut. There are 50 bazar shops and 40 to 50 weavers find employment in the town.

Oojain, Nagapoor and Dermapoory are thriving villages each containing from 400 to 500 houses, but with the exception of Dermapoory, which has a small but well-built stone fort, they contain nothing that is worthy of remark. Nagapoor and Dermapoory have each weekly markets, the former on Wednesdays, the latter on Saturdays.

Talooks.—Ghat Nandoor, a kusba of 12 subordinate villages, is a walled town, well peopled, contains 8 shops and has a weekly market.

Pangaon is a market town and is the kusba of 12 subordinate villages.

Reynapoor is a large village situated on the highroad from Hyderabad to Darroor, has 4 subordinates under it, and contains 40 shops. A weekly market is held here.

Kurvulla is an ordinary-sized walled town, but well peopled, four miles distant from and S. E. of Reynapoor ; it has five subordinate villages and holds a market weekly.

Rivers.—The Godavery river forms the northern boundary of this Circar ; its course is easterly throughout ; the bed is sandy and the average height of the banks is from 30 to 40 feet ; it contains water throughout the year, but it is very shallow during the hot months. It receives several considerable streams in its course along the Circar, which have their sources in the ghauts about Darroor. Of these the principal is the Wan, which rises near Darroor and descends from the ghaut with great velocity near Ambah ; proceeding by Oojain, Hussainabad, Anjando, Rooi, Asserdo, Mirpully, Nagapoor and Pipary, it empties itself into the Godavery at Wan Sungum. The Manjera enters the Circar about four miles to the westward of Dyetna, and pursuing an easterly course of about forty miles along the southern boundary of the Circar, receiving several smaller streams in its course, quits it at Urnwaddy ; its bed throughout is sandy and the height of the banks varies from 12 to 25 feet ; it retains water throughout the year, but is generally fordable, except for a short period during the height of the monsoon.

Lakes, Tanks, Reservoirs.—There are no lakes in this Circar ; the tanks are few and small, and seldom retain water for more than three or four months in the year.

Mountains, Hills, &c.—The only hills of any magnitude are those composing the range which stretch easterly and westerly across the Circar, and upon the summit of which Darroor is situated ; they have no general appellation, and their average height is about 400 feet above the plain.

Forests, Woods and Jungles, &c.—There are no forests or woods in this Circar.

Agrarams of Brahmins.—None.

Cattle and Animals.—The ordinary domestic animals are tolerably abundant. Elks, wild hog, antelopes, wolves, hyenas, jackals and a few cheetahs are to be found in the Circar. Tigers are seldom met with.

Remarkable Buildings.—None worthy of remark.

Roads, Passes and Defiles.—The only military road in this Circar is that between Hyderabad and Poona *via* Ambah and Darroor ; it is in tolerable order and perfectly practicable for wheel carriages throughout. For further particulars regarding this and the other roads see the accompanying description of roads in the Darroor Circar.

Mines, Minerals, and Manufactures.—Saltpetre is collected and a coarse kind of gunpowder is manufactured at Purley, sugar and arrack are manufactured in several villages in this Circar, and coarse cloths and cummuls at all the larger villages.

Soil and Productions.—The soil is generally a black loam, and the cultivation is confined entirely to dry grains, wheat, jowary and chenna, moong dhal ; kóosumbah, sugarcane, betel and poppies are also cultivated to some extent.

(Signed) H. MORLAND, Brevet Captain,
In charge Hyderabad Survey.

GEOGRAPHICAL MEMOIR OF THE NULDROOG CIRCAR.

Its Situation, Extent and Boundaries.—The Circar of Nuldroog is situated between $75^{\circ} 57' 20''$ and $76^{\circ} 49' 50''$ of E. longitude, and between $17^{\circ} 24' 43''$ and $18^{\circ} 25' 40''$ of N. latitude. It is bounded on the north by the Soubah of Nandair, on the east by the Circar of Kullianee, on the south-east by that of Kulburgah, on the south and west by the district of Sholapoor, on the west by the Circar of Perandah, and on the N. W. by an insulated portion of the district of Sholapoor. Its greatest length is 72 British miles, and greatest breadth 48 miles, presenting a very irregular figure, in superficies 1,483 British square miles, of which 960 square miles are occupied by dry cultivation, and 375 square miles by waste land, of which about 12 square miles are low jungle, but the part occupied by hills cannot be estimated; however, the whole Circar being hilly, and its features presenting a succession of slopes, and gradual descents from a high to a low country, much of the land is rugged and unfit for cultivation, and it may be estimated at about 148 square miles.

Divisions and their Boundaries.—It is divided into 8 pergunnahs, viz., Nuldroog or Havailly, Alloor, Tooljapoor, Thair, Dhoki, Goonjatee, Darasco and Allund, to each of which a certain number of villages is attached, for which see the register of villages.

Capital, Cusbas, Droogs, Forts, Market Villages and other considerable places.—Nuldroog.—A hill-fort of considerable strength situated on a small peninsula and island formed by the river Boori, and covering, with its pettah, about 33 square furlongs. It is situated in north latitude $17^{\circ} 49' 15''$ and east longitude $76^{\circ} 20' 30''$. The pettah is situated on the west of the droog and is partly enclosed by a stone wall. The fortification of the droog is a stone wall, supported by towers, having a rampart about 10 feet thick, but which may be estimated on the south and west faces at about double that thickness. The fortification of the Runmundel, or fort on the island, is of the same kind, and its rampart is about 20 feet thick on the west and north faces, and on part of the south face. The site of the droog is lower than that of the surrounding country, but the great tower which stands in the north end overlooks the surrounding heights. The works on the west face are not sufficiently high to render an escalade impracticable. The entrance to the droog is in the middle of the west face, and that of the Runmundel at the west angle. It is said that Nuldroog was built by one Rajah Null, but who he was appears very uncertain. It is also said that before his time Andoora and Julkote were the chief villages in the Circar. The petta is of considerable extent, and contains a mosque and about 70 dookans; the inhabitants are generally of the higher castes, and a market is held on Sundays, but there are no manufactures nor mechanics at Nuldroog, save those in the pay of the Oomrah, who commands the fort. There is a mosque in the fort, also two without the walls, and about $1\frac{1}{2}$ miles to the west of the fort is a large chuttrum, and a pagoda dedicated to Khundobah, where a feast is annually held; there is, however, no idol in the pagoda, but that which is at Andoora is brought annually to remain a few days in state; the sum collected at this feast is barely sufficient to remunerate the officiating Brahmins. Near the south-east angle of the fort, on the bank of the river, is a travellers' bungalow (a thatched hut).

Alloor, the kusba of the pergunnah of the same name is a small village surrounded by a mud wall, and situated in $17^{\circ} 36' 42''$ north latitude and $76^{\circ} 28' 30''$ east longitude. There is a pagoda, at which an annual feast takes place, also a mosque and three or four bazars.

Toljapoor, a large and populous village situated at the head of a small ghaut in latitude $18^{\circ} 0' 50''$ N. and in longitude $76^{\circ} 7' 35''$ E. is the capital of the pergunna of the same name. It is surrounded by a stone wall, has a high ghurri within it, and contains many good houses in regular streets, presenting a clean and respectable appearance. Its population are chiefly Brahmins, shroffs, and petty traders; the inferior castes are not allowed to reside within its walls. It

was held in jagheer about 150 years ago by a Mahratta named Nimbarker, who built the pagoda situated on the highroad to the west of the town and dedicated to Bhawanee, called in Mahrattic Doorga Devy. A stipulated sum of Rs. 4,000 is paid annually from this pagoda to the Circar, and in addition to about Rs. 3,000 of the collections, making altogether Rs. 7,000. The bazar contains about 100 dookans, and a market is held on every Tuesday and Friday.

Thair, the capital of the pergunna of the same name, lies in north latitude $18^{\circ} 19' 10''$, and east longitude $76^{\circ} 11' 35''$. It is a neat stone-walled town, covering about 12 square furlongs and situated on high land on the south bank of the Thairna, which flows on its north and east sides. It has a well-supplied bazar. There are many pagodas, which are conspicuous in approaching the town; at one of these, situated 2 miles west of the town, dedicated to Goraba, or Gora Coombar, a potter and worshipper of Vitoba, an annual festival takes place in April, which lasts a week, and a fair is held which is kept up for a month, and is attended by traders from all quarters. There is also a pagoda within the fort, dedicated to Mahadeo. The inhabitants are all Mahrattas.

Dhoki, the capital of the pergunna of the same name, is situated in $18^{\circ} 22'$ north latitude, and $76^{\circ} 8' 25''$ east longitude. It is a small but compact village covering about 6 square furlongs and surrounded by a mud wall; in the centre is a high cavalier or ghurry. There are a few shops, but they are only capable of supplying the immediate wants of the inhabitants. It is situated on an extensive and richly cultivated plain, and is said with its subordinate villages to yield a revenue of 2,500 rupees; on its eastern side is a small hill, and an Edgah which has been used as a small trigonometrical point. The officer or person in charge of the pergunna resides within the fort.

Goonjotee is situated on a branch of the river Benethora in latitude $17^{\circ} 48' 50''$, and longitude $76^{\circ} 38' 45''$. It is a respectable village covering about 10 square furlongs and surrounded by a stone wall; the village itself is situated on the south bank, but the pettah, which is surrounded only by a mud wall, is on the opposite bank; the village, likewise the whole pergunna, is the jagheer of Shums-ool-Oomrah of Hyderabad. It may be estimated that this village contains 12 dookans, but no market is held. Its manufactures are coarse cloths, kumbles, brown paper, and arrack distilled from the Yippa^o flowers. About $1\frac{1}{2}$ miles on the south of the village is a high stone pillar, which has been used as a trigonometrical point.

Daraseo, the capital of the pergunna of the same name, lies in $76^{\circ} 5' 30''$ longitude, and $18^{\circ} 14' 40''$ latitude. It is a large and populous village fortified by a strong stone wall supported by towers. It has also a high ghurree within it serving as a citadel. It is situated at the head of a small ghaut, and surrounded by dry grain cultivation, has a considerable bazar, and a market is held on Fridays. To the south of the village stands a large durgah in which are deposited the remains of a Mahomedan saint, and to whose tomb an Oorus or pilgrimage takes place once a year, at which time a fair is held for a few days. This pergunna is in the charge of an Amil, a Mahratta Brahmin.

Allund, the capital of the pergunna of the same name, situated in north latitude $17^{\circ} 33' 42''$, and east longitude $76^{\circ} 37' 5''$, is a very irregular village surrounded by a mud wall covering about 17 square furlongs, and having a small mud fort on its north, now in ruins; it contains about 80 or 100 dookans, and a market is held on Sundays, at which is vended fine and coarse cloths, kumbles and brass pots, &c., &c. On its west side is situated a remarkable durgah, the place of burial of one Landla Sahib, an Aulea or Mahomedan saint; he is said to have been Badsha of Anthurpoor, in Upper Hindustan, and left his kingdom and country through religious motives to adopt the habits of a fakeer or durvaish; he took up his abode at Allund, and built the durgah, in which after his death he was interred, which, it is said, took place five or six centuries ago; however this may be, he is worshipped both by Mussulmans and Gentoos of all castes—Brahmins, Mahrattas, Bunnias, &c., &c. The Mahomedans,

worship him as Landla Musshaid, the Hindoos as Raghavachaitun. It is related that a Hindoo (mahpoorsh) or saint also took up his abode at this place, whose name was Narraindeo, with which the Mussulman saint becoming acquainted he went to him, but upon his approach the Hindoo wished to retire, to avoid being defiled by a Mahomedan approaching him, so the Mussulman dressed himself as a Brahmin and wearing the thread of that caste appeared before Narraindeo and said, "Be not displeased because that I am a Mussulman;" the Hindoo was pleased at this condescension and greatly praised him; then Landla Musshaid consulted with him, and prevailed upon him to leave Allund, and to take up his abode at Nurrona, about four kos to the north, which Narraindeo did, and there is in that village a famous pagoda dedicated to him, to which an annual pilgrimage takes place. The tomb is of the common shape, of stone and chunam whitewashed, and surrounded by a wall, which encloses a sort of flower garden; opposite the entrance is a Tabookhana or orchestra; this enclosure is again surrounded by a wall, which embraces several minor buildings and has a gateway the minarets of which are about 80 feet high. The gateway is said to have been built by some of the Umeers of Hyderabad, but by whom the doors of the durgah were made, which are covered with plates of silver, is not mentioned. A festival takes place three times in the year—1st, in the month of Rubbelakur; 2nd, Jamadoolowel; 3rd, Rusub: that in the month of Jamadoolowel is the grand festival, and is attended by pilgrims from countries as far distant as Delhi. A jagheer of 4 villages, and the whole of the collections made at the feast, are reserved for the use of the durgah.

Heereehully is a small town surrounded by a mud wall, having a small ghurry faced with stone, and eight or ten bazar shops; the inhabitants are chiefly Mahrattas, with a few Tellungas and Moors.

Sullagur, a large town surrounded by a mud wall, has a stone ghurry, and is the jagheer of the Nippoong Rajah. The town, though large, is in a ruinous state; there are about 20 bazar shops, and a market is held on Thursdays; also a few coarse cloths, kumbliies, and arrack are manufactured at this village.

Hippurghi is a large town in a ruined state, surrounded by a mud wall; it has a small ghurry, a weekly market and several bazar shops; this is also the jagheer of the Nippoong Rajah. Its manufactures are coarse cloths, kumbliies and arrack.

Sirumba, a straggling village containing two or three hundred houses and a few bazars; the inhabitants are Mahrattas, Tellungas and Moors.

Sungjee is surrounded by an old mud wall; it is only remarkable for an Edgah and mosque dedicate to Landla Musshaid; the inhabitants are Mahrattas and Moors.

Javully, a large village surrounded by a strong wall and having a ghurry in its centre; its inhabitants are of all castes; there are two bazars, and a few coarse cloths and kumbliies are manufactured here.

Andoora, a large village at which is a neat pagoda dedicated to Kundoba, at which an annual festival is celebrated. Its inhabitants are chiefly sowcars and wholesale merchants.

Yenagoor is a small village at which a market is held but which is badly attended.

Oomerghi, a large village on the highroad to Sholapoor. It is surrounded by a mud wall, and has a very high mud ghurry in its centre; a few coarse cloths, kumbliies, and brown paper are made here, and a grand market is held once a week, at which cattle, &c., are sold.

Absinghee, a small village surrounded by a mud wall with a red stone ghurry in the centre. It contains three or four shops, and a bazar is held once a week. There are two large pagodas, and one small. Its inhabitants are chiefly Brahmins and it is an Inam belonging to several Brahmins, or an agrarum.

Moostee, a small village situated on the left bank of the Hurnee river, surrounded by a neat mud wall enclosing a stone ghurry. Its inhabitants are Mahrattas. There are one or two bazars, also a large pagoda. This village belongs to the Nipponee Rajah.

Ughta, a large village surrounded by a large mud wall with a ghurry in the centre of red stone; there are three or four shops, and the inhabitants are Mahrattas.

Morumb is a small market town surrounded by a mud wall with several stone bastions and two ghurries. There are two pagodas, a mosque, and about forty or fifty bazar shops; its manufactures are coarse cloths, kumbliis, Mussulman slippers, arrack, &c.; the weekly market is held on Wednesdays. The inhabitants are of all castes.

Beylim, a large village surrounded by a neat mud wall with several bastions, and a strong ghurry in its centre; there are about six or eight bazar shops, and a pagoda on the east of the village; the inhabitants are chiefly Mahrattas; and a weekly market is held on Thursdays.

Keyser Joulagah, a small village surrounded by a mud wall, and having a strong stone ghurry in its centre; there are five or six bazars; the inhabitants are of the lower classes, and the village belongs to the Nipponee Rajah.

Kajoorghi, a large village surrounded by a stone wall with several bastions, and a stone ghurry in its centre. It is the residence of a Desmook. There is a small pagoda to the east of the village, also ten or twelve bazars. The inhabitants are Mahrattas and Brahmins.

Rivers and Anicuts on them, and Canals.—Thairna River.—This river rises near Boorgaon, in the Soubah of Nandair, and enters the Circar in north latitude $18^{\circ} 20' 35''$ and east longitude $76^{\circ} 6' 30''$, whence flowing in an easterly direction it passes between the villages Khamagaon, Toogaon and Toddaverri on its south bank, and Rovi on its north, to Thair. Throughout the whole of this course there is water, but the quantity is small in the dry season, and pools are formed in different parts; the banks are high but not rocky, and the whole course is through an alluvial soil resembling a mixture of cotton soil and red earth; at Thair it takes a south-easterly course for about seven miles to its junction with a large nulla; the river throughout the whole of this course presents much the same appearance as during the last, but its banks are steeper, the red soil more prevalent, and the quantity of water increased, so that the river is several feet deep throughout the year; also it is only fordable in certain parts, and may be estimated to be seventy yards broad. The great nulla rises on the heights above Ghud-Deonderri, and has the villages of Oopla, Wurooda, Kajula and Darphul on its north bank, and those of Singali, Wagoli, and Rajoori on its south. Its banks are steep, its course through an alluvial soil, and it generally contains a small quantity of water. At the junction of the nulla the river takes a more easterly course, and at the distance of $1\frac{1}{2}$ miles finally leaves the Circar in north latitude $18^{\circ} 13' 35''$ and east longitude $76^{\circ} 16' 25''$. The several nullas which fall into this river generally contain a small quantity of water.

Hurnee River.—This is a small river which rises at Kaye-kul, three miles south-east of Taljapoor; at its rise it takes a course nearly due south, and passing the villages of Khoonbar, Nandoora and Katgaon leaves the Circar near a waddi in north latitude $17^{\circ} 46' 40''$ and east longitude $76^{\circ} 7' 50''$, and passing close to the east of Thaundulwaddy, which is in the Sholapoor district, re-enters the Circar in north latitude $17^{\circ} 45' 12''$ and east longitude $76^{\circ} 8' 50''$, and assuming a south-easterly course passes to the east of the village of Moostee, and finally leaves the Circar in north latitude $17^{\circ} 42' 12''$, and east longitude $76^{\circ} 11' 20''$, about one mile south-east of which point it is met by one of its branches which rises in the Circar near Cheverie, and comes down by the villages of Umburga, Keyroor, Babulgaon, Kusurgaon, and Devasinghi; both branches of this river generally contain a small quantity of water, and their course for the most part is through a dark vegetable soil which is occasionally mixed with large round granite stones.

Bori River.—This is a small river that rises at the village of Bori, from which it takes its name. It takes its course south-east to Nuldroog, and has the villages of Ungurgah, Deosinghi, Goondroog and Ugloor situated on its banks; nearly the whole course is through an alluvial soil, and six or seven large nullas fall in from the north, but the breadth of the river at Nuldroog above the *batardeau* is not more than 25 yards, at Nuldroog it forms a small island, and a grand *batardeau* is built across the stream to form a tank, and the water escapes round the west corner of the island, where is a waterfall; there are

several sluices in the dam for letting off water, but no water ever passes over its top. This is said to be an ancient work and is of considerable magnitude. It cannot be less than 80 feet high, and from 20 to 25 feet wide at its top, and is of stone well fitted and cemented with chunam. In the west end of the dam there are several small apartments forming a pleasure-house, and a small verandah opens to the north and overlooks the pool below the dam ; in the east end is a small mill house, but the water-wheel, &c., have all fallen to decay ; the entrance of both the buildings is from the top of the dam. Below the dam and waterfall is a deep valley about 80 feet below the level of the country, through which the river runs round the fort or droog, and on the eastern side a strong brick and stone dam is thrown across the valley, perhaps to form an inundation extending round the north end of the droog, and thereby render it inaccessible on that side, or only to form a tank. Below the last-mentioned dam the river is 45 yards wide, its banks are steep and rocky, also its bed, and it takes a general course almost south and passes the village of Yedala, at $2\frac{1}{2}$ miles below which a nulla falls in from the north-east, which runs by Julkote ; near Duhetna the river comes upon the boundary, and one mile further on leaves the Circar and enters the district of Sholapoor in north latitude $17^{\circ} 42' 57''$ and east longitude $76^{\circ} 18' 20''$. From Nuldroog the course of the river is through rocky ground, and it has sometimes on one or both sides a perpendicular precipice of rock on very steep and rugged hills ; the banks of the nulla are much the same from a little below Julkote to its junction with the river : both always contain a small quantity of water. There are a few roach of about one pound weight in this river at Ramteert, east of Nuldroog, but it may be considered that they are fed for the pleasure of the Umeer who commands the fort.

Bennathora River.—This river is of greater extent than any in the Circar. It rises at Wuddagaon station and flows south-east by Wuddagaon and Yenagoor to Morumb, where it forms two small islands ; its whole course is through a dark soil mixed with rock stones ; its banks are seldom higher than 7 feet, and it generally contains a small quantity of water at Morumb. It is about 80 yards wide ; at the islands, near Morumb, it turns east and passes by the villages of Kulkoor, Sirroor and Gudulgaon to Toogaon, where it is met by one of its branches which rises at Burra Numbal, and comes down by Goonjatee : the course of both the river and its branch is through the sort of soil before mentioned. The river about this part has generally a little water in it throughout the year, and also at Goonjatee. The small nullas falling in have generally springs in them which are constantly flowing. At Toogaon the river commences its course through a very rough broken ground, and has precipices of about 60 or 100 feet on both sides, which form a narrow valley, through which the river runs ; it keeps an eastern course to Gorawaddi, and then takes a general but very winding course to the south ; about one mile to the south of Dhannoor it becomes the boundary, it has the villages of Nundgoor, Uttergah, Chenkatah and Bulkaid situated on its banks, and at the latter village it forms an island about one mile in length, and leaves the Circar in north latitude $17^{\circ} 38' 45''$ and east longitude $76^{\circ} 44' 50''$.

6. *Lakes, Tanks, and Reservoirs.*—The only tank in the Circar is that at Nuldroog, which is formed to supply the fort with water.

7. *Mountains, Hills, &c.*—The surface of this Circar is hilly, but not mountainous ; it is an elevated table-land situated about 2,000 feet above the level of the sea. The following are the principal ridges of hills and of declivities :—1st, A ridge of a declivity entering the Circar north of Daraseo, and passing thence by Taljapoor to the south of Nuldroog after crossing the river of Bori. It gradually diminishes and terminates in a waving country extending as far as Kajoorgi. This declivity or ghat has no name. 2nd, A ridge of detached hills of Eatente, which crown the high land dividing the waters that finally fall into the two great rivers the Kistna and the Godavery: the commencement of this ridge is about four miles to the north of Taljapoor, where a small hill stands above the declivity or ghat running by Taljapoor to Nuldroog. It takes an easterly course and passes by the stations of Daroor, Wudda-

gaon, Deolutta, Paunchpeer, which are on its highest points, to that of Maduz pagoda; where it takes a southerly course by Daoodmullick station to Tooroory station and finally leaves the Circar; throughout the latter course it is not a ridge of hills, but the edge of a declivity.

There is also a small ridge of hills and a declivity on the southern extremity of the Circar; the stations of Umbewad, Allund, and Lingudhully are situated on its highest points, but it is too inconsiderable to require description. Almost the whole of the remaining portion of the Circar is a wavy country.

8. *Forests, Woods, Jungles, &c.*—There are neither forests nor woods, but the top of the hills and waste lands have generally a small quantity of bush jungle on them, and a few trees are to be seen scattered about the villages, also a few mango topes.

9. *Agrarans of Brahmins, Polliams, Jaghirs.*—There are no religious establishments in the Circar, and those villages, which are jaghir, enam, &c., have the same pointed out on the column of remarks in the Register of Villages.

10. *Cattle and Animals.*—All animals, both wild and domestic, are very scarce, but there is nothing with regard to them that is peculiar.

11. *Remarkable Buildings.*—It cannot be said that there is a remarkable building in the Circar; the pagodas, durgas, &c., have been mentioned with the villages near which they stand. It is therefore unnecessary to mention them again.

12. *Mines, Minerals and Manufactures.*—There are no mines or minerals, but a quantity of white powder, in a very pure state, is to be found in the river Bennathora, near the islands at Moorumb. It is described as resembling soda powder, and is said to have that taste. The only manufactures are coarse cloths, kumbliies, jaggry and arrack, &c.

13. *Roads, Passes and Defiles.*—There are no roads in the Circar, but some bullock tracks have become the medium of communication between Hyderabad and other large towns, and are therefore so called.

The principal road enters the Circar at Sircy, which is situated near the eastern boundary and is the highroad from Hyderabad to Poonah *via* Toljapoor. The following are the villages on the route:—Sircy, Moodgud, Dongergaon, Chakoor, Naringawaddy (leaves the Circar), Tawsi, Danoor, Sabore, Moruddy (enters the Circar again), Kundalli, Kakumbra, Taljapoor, seven miles west of which it finally leaves the Circar; total length 53 miles. This road is scarcely practicable for country carts. A road branches off from Sircy to Sholapoor *via* Nuldroog, and passes by the villages of Koonbully and Muluz to Oomergah, where a small road joins from Oomnabad, which is a short cut by which the tappal runs, but not practicable for bandies; it passes by Muntallah, Tulmode and Tooroor to Oomergah; from Oomergah the route passes by Jakakoor, Yelli, Dallim, Yenganoor, Dustapoor, Jelkoat, Nuldroog, Dungarwady, Babulgaon, and Itkul to Thandulwaddy (in the Sholapoor district). This is the track for bandies, but is exceedingly difficult. The tappal route turns off at Nuldroog and runs *via* Andoora, Chavanaswaddy, Keyrjoor, and Khanapoor to Thandulwaddy; total length 48 miles.

The road from Sholapoor to Nagpore enters the Circar near Sindpol, and passes by Toljapoor, Bari, Wuddagaon, Shukrapoor, Daraseo, Oopla, Kheid and Khamgaon, half a mile north of which it leaves the Circar; total length 29 miles.

Many tracts besides these are inserted on the map, which may be used by troops unincumbered with artillery or wheeled carriages, and will be found as practicable as those which have been described.

14. *Soil, Productions, and Mode of Husbandry.*—The soil for the most part is a red gravel laying on a stratum of laterite rock; this particularly applies to the high lands. The valleys and places immediately below the ridges are generally of a dark vegetable soil and often mixed with large bullet stones and grey granite rock. There is nothing peculiar to the Circar in the mode of husbandry, or the implements in use. The following are the chief productions:—jawarry, chenna, wheat, koolty, pig peas, pig nuts, green gram, til, koosumb or the bastard saffron used for dyeing cloths, linseed, binka, and poppies, and a variety of other pulse peculiar to the country. The garden productions are carrots, radishes, brinjals, 'chillies,

PHYSICAL FEATURES AND NATURAL PHENOMENA.

saffron, onions, ginger, garlic, aniseed and a variety of other lesser articles. The plantations of sugarcane are very extensive in this Circar, from the juice of which jagry, arrack, and vinegar are made. The tamarind and mango groves are somewhat abundant ; also a small quantity of plantains and grapes are procurable in the large villages.

15. *Population and Inhabitants.*—Dispensed with.

16. *Vide* Triangles.

17. Dispensed with.

18. See general view and description of the boundary.

19. No survey of the roads has been made.

20. *Miscellaneous.*—There are six villages situated in this Circar that belong to the district of Sholapoor ; of these, four, viz., Wagali, Kajula, Oopla and Poarwaddy, are situated in the western extremity of the Circar. One, Mungarool, which has two subordinate villages, is situated about six miles to the south of Toljapoor ; and one, Hurly, about eleven miles south-west of Nuldroog.

There are also three villages of the Nandair Circar situated in the north-east end of this Circar, viz., Sarola, Wurroda and its subordinate village, also Banderwaddy.

GEOGRAPHICAL MEMOIR OF THE KULLIANEE CIRCAR.

1. *Its Situation, Extent and Boundaries.*—The circar of Kullianee is situated between $76^{\circ} 43' 25''$ and $77^{\circ} 8' 15''$ east longitude and between $17^{\circ} 36' 35''$ and $10^{\circ} 6' 22''$ north latitude. It is bounded on the north by the Soubah of Nandair, on the east by the Circar of Beder, on the south by that of Kulburgah, and on the west by that of Nuldroog. Its greatest length from north to south is 32 British miles, and greatest breadth from east to west 26 British miles. Its figure an irregular parallelogram, and superficial contents 584 British square miles, $80\frac{1}{2}$ miles being occupied by hills, $503\frac{3}{4}$ miles by plains, $388\frac{1}{2}$ miles by dry cultivation, $2\frac{1}{2}$ miles by paddy cultivation, 4 miles by tanks, 4 miles by topes, $71\frac{1}{2}$ miles by waste land, and 40 miles by jungle.

2. *Divisions and their Boundaries.*—It is divided into two pergunnas, Kullianee and Purtapoor, to each of which a certain number of villages is attached under the heads of Busroog and Waddi,—that is, principal and subordinate villages, for a general list of which see the Register of Villages.

3. *Capitals, Cusbas, Droogs, Ports, Market, Villages and other considerable places.*—Kullianee, the cusba of the pergunna of the same name, is situated in north latitude $17^{\circ} 53' 6''$ and east longitude $76^{\circ} 59' 54''$. It is a large open village covering about one square mile, and containing many respectable buildings besides the Jaghirdar's palace; on the west is a small flat rock which overlooks the village, and on the north-west the fort; many mosques, pagodas and durgahs are to be seen about the suburbs, the most commanding attention are a neat durga on the west of the village, to which a pilgrimage or oorus annually takes place in the month of Shawul, and a fair is held for several days,—a durga situated in the southern part of the village to which a pilgrimage takes place and a fair is held in the month of Rubbeeoolawul, which lasts several days,—and a pagoda on the north-east of the fort. The number of dookans may be estimated at about two hundred, and a market is held on Wednesday and Saturday, at which coarse cloths, vegetables, &c., are sold. The inhabitants are of all castes, among whom are many soucars, petty traders, and braziers. This village and the whole pergunna is the jaghir of Imtiaz Dowlah.

Purtapoor, a small village from which the pergunna takes its name, situated on the west of a tank $1\frac{1}{2}$ mile south-west of Kullianee, in latitude $17^{\circ} 53'$ north and longitude $78^{\circ} 58' 35''$ east. The cutchery of the pergunna is held at Rajasoor.

Rajasoor, a small village situated on the highroad to Poona and south $8\frac{1}{4}$ miles east of Kullianee, at which the cutchery of the Purtapoor pergunna is held. It contains a small fort and about 12 bazars, also a market is held on Fridays.

Muntalla, a large village on the road to Sholapoor south $7\frac{1}{2}$ miles west of Kullianee. It is surrounded by a stone wall and has an extensive petta to the east. It contains a few dookans, and a market is held on Tuesday for provisions and on Wednesday for cattle. This village is the jaghir of Usmod Dowlah.

Goundgeon, a large village north $7\frac{1}{4}$ miles east of Kullianee, which is surrounded by a wall, has a large ghurry in its centre and contains six or eight dookans or bazars.

Ladavantee, a small village south $17\frac{1}{4}$ miles west of Kullianee, at which a market is held on Sundays.

Kooloor, a small village south $17\frac{1}{4}$ miles west of Kullianee, and south $2\frac{3}{4}$ miles east of Kooloor, $1\frac{1}{4}$ mile north-east of which is a durga, on a small hill, the place of sepulchre of one Madhar Sahib, to which a pilgrimage annually takes place, and at which a fair is held for 15 days.

4. *Villages and Towns.*—For the actual position of every village see the Register of Villages.

5. *Rivers and Anicuts on them, and Canals.*—Thairna.—This river forms part of the northern boundary of the Circar and crosses a narrow neck of the same. Its breadth is about 80 yards and its bed sandy.

Chaulky.—This is a small river which rises at a waddi about 6 miles west

of Purtapoor. It takes a general course north-easterly, and passing by Purtapoor, Kullianee, Balkoonda, Mutchillum and Togatoor, leaves the Circar in longitude $77^{\circ} 6' 50''$ E. and latitude $17^{\circ} 58' 40''$ N. The whole course of this river is through an alluvial soil, its banks are low, its bed sandy, and it may be estimated at about 20 yards wide at Balkoonda.

Branch of the Bennithora.—This branch rises near Chitta, it takes a southerly course, passes by the villages of Wuddagaon, Sirjanlaga, and Lingapoor, and leaves the Circar near Karada in longitude $76^{\circ} 54' 15''$ E. and latitude $17^{\circ} 38' 40''$ N.; this nulla contains a small quantity of water throughout the year.

6. *Lakes, Tanks and Reservoirs.*—There are many tanks in this Circar formed for the purposes of cultivation, but they are of too little importance to require description, and do not contain water during the dry season; those at Purtapoor and Narainpoor are the most considerable, also one in the hills, from which a small canal is cut to supply the kusba of Kullianee with water.

7. *Mountains, Hills, &c.*—The surface of this Circar is covered with extensive flat table-hills, and way lands. The highest table is that south of Kullianee, which may be estimated at about 2,300 feet above the level of the sea. It is very extensive and is bounded by a ridge of red porous rock (laterite) which enters the Circar near Nimbapoor in latitude $17^{\circ} 58' 32''$ N. and longitude $77^{\circ} 5' 50''$ E. It takes a south-westerly course by the stations of Narrainpore and Kowdal to that of Ramteert Boorj which is on its edge; about this point numerous detached table-lands of the same kind as this principal table branch off to the north and west at Ramteert Boorj; the ridge takes a westerly course to Chitta station, and thence a south-easterly course for five miles to the village of Hittal, where detached table-hills branch off, and extend by the stations of Moodmy and Kalnunderghee as far as that of Murgooty, which is the last detached hill. At Hittal the ridge is very slight and gradually disappears; crossing the river, it may be traced to the station of Kowdal, where it becomes very distinct and takes a south-easterly course to the station of Mustapoor, north $1\frac{1}{2}$ mile east of which it finally leaves the Circar and enters that of Beder. Kowdal station, and the land to its east and west may be estimated at about 500 feet above that at Murgooty, and about 300 feet above that lying to the south-west near Hittal. At the station of Moodmy, which is situated on the last large detached table, a lower ridge or edge of a fall commences and runs south for five miles, where it turns east and at a distance of three miles leaves the Circar. The edge or ridge of another descent or ghat enters the Circar near the station of Tooroory, and runs south to that of Ramteert, from which detached table-hills extend south as far as Sallagara tree station, which is on the boundary. From Ramteert the ridge runs east and marks the boundary of a table-land which terminates south of Moodmy station. The remaining surface of the Circar is occupied by a wavy country and is generally cultivated. The greatest descent from the table-lands does not exceed two or three hundred feet, but the descents are very steep and generally crowned by a ridge of perpendicular laterite rock.

8. *Forests, Woods, Jungles, &c.*—There are no forests or jungles; the tops of the hills and the waste lands are generally covered with bushes, but there are no trees save those forming the tamarind and mango topes in the vicinity of the villages, and which are rather numerous.

9. *Establishments and Agrarums of Brahmins and other Sects, and Polliams, Jagirs, &c.*—There are no establishments of religious sects in this Circar. For those villages which are jaghir see the Register of Villages, where the same is pointed out in the column of remarks.

10. *Cattle and animals, &c.*—The cattle and all animals, both wild and domestic, are very scarce, but there is nothing peculiar in them, and they are such as are common in other parts of the country.

11. *Remarkable Buildings.*—None.

12. *Mines, Minerals and Manufactures.*—There are neither mines nor minerals in this Circar, and the only articles manufactured are a few coarse cloths, cumbles, and vinegar, &c.

13. *Roads, Passes and Defiles.*—The highroad to Poona and Sholapoor enters the Circar about $1\frac{1}{2}$ miles east of Guddunthee, and passes by Rajasoor, Narainpoor, Kallianee, Purtapoor, Hulhully, Mirgonhully, Nallawadda and Kussar Sircy, about $1\frac{1}{2}$ miles west of which it leaves the district ; total length 33 miles.

There is also a cross road which passes from Rajasoor to Oomerghi via Muntalla.

14. *Soil, Productions, and Mode of Husbandry.*—The soil for the most part is a red gravel lying on a stratum of laterite rock ; this particularly applies to the high lands ; the valleys and places immediately below the ridges are generally of a dark vegetable soil which is often mixed with large round stones and grey granite rock. There is nothing peculiar in the Circar in the mode of husbandry or the implements in use. Dry grains are those chiefly grown, but the quantity of garden produce is considerable and might be much increased. The following are the chief productions :—jowarry, chenna, wheat, koolty, pig peas, pig nuts, green gram, til, koosumb or the bastard saffron used for dyeing cloths, linseed, lankat and poppies, and a variety of other pulse peculiar to the country. The garden productions are carrots, radishes, brinjals, chillies, saffron, onions, ginger, garlic, aniseed, and a variety of other lesser articles. The plantations of sugarcane are very extensive in this Circar, from the juice of which jagry, arrack and vinegar are made. The tamarind and mango groves are somewhat abundant ; also a small quantity of plantains and grapes are procurable in the large villages.

BHONAGHEER MEMOIR.

The general features of this Circar to the north and west are hilly, covered with wood, and partly so to the N.E.; the intermediate space consists of undulating plains occupied by wet and dry cultivation interspersed with detached hills.

Situations and Extent.—Bhonagheer or Bhonagheery is bounded on the north by the Circars of Medduck, Warungul and Molunpoor, on the east by Warungul and Felgoonda, south by Devarconda, and on the west by Golconda and Medduck. Its greatest length from N. to S. is 72 miles, and its breadth from E. to W. 52 miles. It comprises an area of 2,464 $\frac{3}{4}$ square miles, of which 237 are laid out in the cultivation of wet grain, 307 $\frac{1}{4}$ of dry grain, 303 of hills, and the remainder, 1,617 $\frac{1}{2}$, of slopes covered with thick jungle.

Divisions and Subdivisions.—It is divided into 11 pergunnas, viz., Bhonagheer or Havaley, Wuddamurry, Teegoola, Sharnuggur, Tarragopla, Cheyralla, Koolpac, Niddagoonda, Vanulconda, Indeperal or Toomullagoodun, and Ratchconda.

Villages, Towns and Droogs.—Bhonagheer, the seat of the Circar and pergunna of the same name, is comprised of 72 principal villages, and is situated in latitude 17° 31' 0" north and longitude 78° 56' 3" east, at the south foot of a fortified solid rock, the height of which is calculated to be 2,154 feet above the level of the sea, and must have formerly been of considerable strength. It lies about 30 miles E. of Hyderabad. This town and droog are at present in a dilapidated state. It is surrounded by a ditch and ruined wall, which, however, by a little encouragement and attention may be restored to its original condition; there is a person employed as killadar in charge of the town and fortress. The droog itself contains nothing of consequence, a few fissures or pools to retain water are alone to be seen, with an ancient palace on its summit, the centre of which is Colonel Lambton's station. It is surrounded by topes of mango and tamarind trees, with a few betel and sugarcane plantations, and is flanked east and west by a rich and extensive sheet of paddy cultivation, and on the south by a wet nulla proceeding from the tank half a mile west of the town. The country a mile to the north and east is very mountainous and thickly covered with wood. The manufactures of this place are coarse cloths, cumblies, wooden toys, and strong cotton carpets for which there are four looms; also spirituous liquor distilled from the date toddy.

The villages in the pergunna are of a middling size with the exceptions of Beebeenuggur, Rajapett, Motakedor, Chadda and Bollapally. The first is an ordinary walled town with four gateways and defended by bastions at the angles; it has a large tank close north, the bank of which is strongly faced with stone but ill supplied with water, nevertheless its fields yield two crops of paddy with the assistance of the adjacent wells. A few opulent merchants or Bunnias reside here, who traffic in tobacco and grain of various kinds, and literally monopolize these commodities for the purpose of supplying their agents in the city of Hyderabad, being situated on the trading road from Hyderabad to Hanameconda via Bhonagheer.

Rajapett is a neat-built town with a respectable stone wall, with towers at intermediate distances from each other, and a citadel adjoining it to the west, which is the residence of a Zemindar, pensioned for his length of services under the Government; it is encompassed by a deep ditch and is situated in latitude 17° 44' 6" north and longitude 78° 57' 23" east, about 16 miles north of Bhonagheer. The town seems to be of the most recent date in the pergunnah, from its new appearance, and it is nearly encompassed by wet cultivation.

Motakoodoor, or Motakoroor, is situated 12 miles east of Bhonagheer; it is well peopled, and has two tanks to the west, only one of which is used in irrigating the fields; a nulla runs half a mile south of the village, which is thickly lined with palmyra. It is the seat of Captain Lee, the Superintendent of the Circar, who has a neat bungalow erected close north-east of the village.

Chaddah is remarkable for its large tank close south of the village, which supplies an extensive sheet of paddy; a rivulet takes its course about a furlong

north of it, which is thickly skirted with palmyra trees; the toddy extracted from them affords a revenue equivalent to the other productions of the village; it has five subordinate villages attached to it, viz., Kattapully, Polkammampully, Nanchairpet, Kuddryangooda and Moottunnagooda, all of which are well peopled. A Deysmook resides here, and his dwelling is in the centre of the village, defended by a small and neat citadel. The hill, with a ruined pagoda on its summit to the south-west, is a trigonometrical point. Bollapully is situated on the west of a rivulet which takes its rise from the Samiarpett tank; it is surrounded by paddy cultivation and has two small tanks. There are a few respectable Banias resident here. Shollaw, Goodoo, Pedda and Chinna, Kundakoor, Kupparapully and Yeirally are moderate-sized villages consisting of about 100 to 150 houses each, some of which have regular streets; the latter has a neat pagoda half a mile north of it, dedicated to Gopalswamy, where an annual fair or jatra takes place. All these villages have small tanks which water several glens of paddy.

Wuddamurry Pergunna.—The pergunna of Wuddamurry consists of 71 villages independent of the subordinates. The only ones of note are Wuddamurry, the kusba, Bomrazpet, Samiarpett, Cheekateemamdy, Madapoor, Toorkapully, Keesara, Mahadeopoor, Ponalla, and Ulleabad. The kusba is situated between the latitude $17^{\circ} 36'$ and $38'$ and longitude $78^{\circ} 42'$ and $43'$ on the south bank of the Samiarpett nulla; it has a ruined guddy to the west, and is skirted by an extensive sheet of paddy to the east, which is irrigated by watercourses issuing from the above nulla; there is a ruined Jain pagoda, with three or four spires, half a mile north-west of the village.

Bomrazpet lies $5\frac{1}{2}$ miles south-west of Wuddamurry; it is remarkable only for a tank and mosque built of granite.

Samiarpett has been a village of some consequence, but is at present in an indifferent state; it has a guddy and is situated half a mile south-east of a large and irregular tank which is partly built of stone and mortar, and the water of which supplies a very extensive sheet of paddy near the village, and is the source of the rivulet that runs by Wuddamurry, &c., as described before. The highroad from Hyderabad to Yelgondel passes close to the east side of this village.

Cheekateemamdy is a large village situated five miles N. E. of Wuddamurry, it has two tanks, one of which retains water throughout the year.

Madapoor and Toorkapully have been once remarkable for the residence of a poligar chieftain who was noted for plundering and committing depredations in the surrounding villages, and who has since been confined by the orders of the Nizam's Minister. Toorkapully is, however, recovering its former appearance from the encouragement afforded by the Government, and the pettah newly built by the Minister last year adjoins the guddy and citadel to the east. The ruins of two forts, situated one on a low rocky hill and the other on a plain, are seen a few furlongs to the west and north-west of Madapoor; it has also a few tanks, and the one in the confines of the hill is rather remarkable.

Keerara is a pretty good village, and is famous for a few pagodas on the summit of the hill chosen by Colonel Lambton for his trigonometrical point, and called Keeshargutt, which is dedicated to Ramaswamy; at this place a grand festival is annually celebrated, which is numerously attended by people of all descriptions. A flight of steps is hewn out from the foot of the hill to its summit for the convenience of the devotees in ascending the hill. It is situated in latitude $17^{\circ} 31' 44''$ and longitude $78^{\circ} 43' 52''$, distant about one mile N. E. of the village, and the height reckoned to be 1,282 feet above the level of the sea.

Mahadeopoor is a miserable village, though it apparently was of some consequence a few centuries back, from the appearance of two large flat granite pagodas remarkable for their exquisite workmanship; it is now quite neglected and lies about 3 furlongs S. W. of Kondulmudgoo hill station.

The village of Ponalla is situated half a mile south of the Samiarpett nulla, and is skirted by a stripe of wet grain on the east side; there is nothing remarkable here but a building and tower on the south encompassed by a stone wall.

Teegoola Pergunnas.—The pergunna of Teegoola comprises 40 principal

villages, of which Murkook, Cheyapurty, Pamalapurty, Ithealla, Ullerazapett, Jaggadeopoor, Peerlapully and Mungool are of some consequence. Teegoola, the kusba of the pergunna, is situated on the Yelgundel road ; it has a neat guddy, between which and the road is a conspicuous three-spined Jain pagoda falling to decay. A wet nulla termed the Moun-er river runs east of the village, richly lined with paddy, which is watered by the stream and several small tanks about its vicinity. It has two subordinate villages under it, both of which are ruined ; it consists of about 600 houses and is the residence of a Deysmook.

Murkook and Cheyapurty are both moderate-sized villages consisting of about 300 houses each, both of which are situated on the highroad to Yelgundel ; they are remarkable for their tanks (the sources of the Moun-er river) and extensive paddy fields. Pamalapurty, lying nearly two miles west, has also a few tanks and a considerable tract of paddy ; the country hereabout is divested of jungle ; and the high grounds, which are of rich black cotton loam, are cultivated with dry grain, interspersed with large mango groves.

Itkealla, Jaggadeopoor and Ullerazapett are moderate sized-villages containing about 100 houses each ; the former has two guddies, one, built of stone and mortar, encompassing the dwelling of the Deysmook, and the other of mud ; it has also two subordinate villages, viz., Syednossarpett and Lingareddygooda, and the two latter have each a pagoda but of no consequence, and no ceremonies have been performed in them for some years past. There are several tanks whose waters are barely sufficient to produce one crop ; the dry grain, however, is considerable, which makes up the deficiency.

Peerlapully is a small place at the foot of a low ridge of hills, at the extreme summit of which is a mosque falling fast to decay. It has two tanks a mile distant to the south-west, and a sheet of paddy extending from them close to the south of the village. The surrounding country is covered with thick jungle, which is hewn and transported to Hyderabad for fuel. "Mungool is a village of 150 houses and is the residence of a naib ; it is about 2 miles west of the Yelgundel road, has a large mango tope to the east surrounded by several small tanks of various sizes and a great extent of paddy cultivation. The remaining villages in this pergunna have nothing in them to merit description.

Sharnuggur Pergunna.—Sharnuggur, the kusba of the pergunna, is in ruins and is stated to have been so a century ago ; there is not a vestige remaining to enable one to guess its former situation except a large stone puckka well, near a banian tree, which is likewise fast mouldering. The situation is, however, said to be at the junction of the two highroads from Kummammett and Hanunconda to Hyderabad. The kutchery is removed to Ragheer, a village one mile north of it. The pergunna consists of 21 principal villages, all of which are scattered in the other pergunnas (of this Circar) ; those of any note are Ragheer, Kolloor, Allaw and Goondial. Ragheer, the seat of the kutchery, lies on the high road to Hanunconda half a mile south of a cluster of peaked hills and a mile N. E. of the Bhonagheer ridge of hills ; it has four subordinate villages, viz., Mootta, Reddygooda, Gungasangooda, Wodiagooda and Goolapully, all of which are well inhabited ; the tanks about its vicinity are ordinary, and the cultivation, wet and dry, in proportion ; the country about its vicinity is thickly covered with palmyra trees, which add considerably to the revenue.

Kolloor is situated on the north bank of the Allaw river, in the midst of paddy fields ; the south bank contains a large tract of the same cultivation, which is irrigated by a tank on the west ; besides the above stream, on the north-west at the distance of 4 miles lies Allaw, which has three subordinate villages, viz., Siedgoodum, Goondlagoodum and Shaigooda ; the latter of these has a flat pagoda close north, situated on a cunda or low solid rock, and in which is a pit or well said by the Brahmins to be natural and unfathomable, though to all appearance it is excavated. Daily ceremony is performed to the pagoda, and a small portion of land is appropriated for its maintenance by the Circar.

Goondial is a large and respectable village with regular streets, in the centre of which is a strong guddy, the residence of the Deysmook ; several opulent

merchants or Bunias also reside here, and a weekly fair is held on every Monday. Colonel Lambton's secondary point is on a flat pagoda on a low rock that lies half a mile S. W. of the village, and is situated in latitude $17^{\circ} 30' 18''$ N. and longitude $79^{\circ} 19' 46''$ east. A wet sandy-bedded nulla runs a furlong east of the village, richly lined with paddy, which is supplied with water from two good tanks that lie northward, one of which belongs to Noonagooda, its subordinate. There is an annual feast celebrated to the pagoda on the low rock.

Cheyrala Pergunna.—Cheyralla, the kusba and seat of the pergunna, is composed of 34 principal villages, several of which deserve attention. The kusba is a large town with several regular streets and bazar shops; it has a mosque and pagoda and is the residence of a naib; half a mile to the south is a large tank which retains water the whole year, and nourishes an extensive sheet of paddy which produces two successive crops, the whole being surrounded by dry grain.

Kondapak and Doodhada are villages situated on the highroad to Yelgundel from Hyderabad; the former is surrounded by a very extensive sheet of paddy and is well watered by several tanks in its neighbourhood; the village is large and regular, consisting of from 150 to 200 houses; the latter is remarkable for a neat pagoda, and is situated in a beautiful valley with several well-inhabited villages scattered along its stream, which is richly laid out into wet and dry grain cultivation. Chinchalcote, Moostial, Gaguilapoor, Arjunputta, Kothapett, are sizeable villages from 100 to 150 houses; the three former are situated along the stream which takes its rise from the Chinchalcote hills, and passes through a low and fertile plain country supplying in its progress several large tanks, till to its junction with a large nulla a quarter of a mile S. of Lingapoor. Of the two latter Kothapully is remarkable for a neat guddy, built of stone and mortar, which encompasses several well-built tiled houses. Arjunputta is situated two furlongs north of this, and is divided by the bank of a small tank; it is only remarkable for a neat mosque in a grove of banian trees.

Sanivarpett, Yachirane and Kodavergo are moderate-sized villages, of from 60 to 80 houses each, well cultivated and peopled, with several large tanks—that of Sanivarpett is the most remarkable. Jyanapoor and Nagapoory are jaghir villages; the former is situated between two tanks, north and south, and the latter at the east bank of a large tank, each having two guddies, old and new, well inhabited and cultivated. The manufactures are chiefly coarse cloths, cumblies, arrack and toddy; there are no principal roads but the one passing through Kondapak and Doodhada from Yelgundel to Hyderabad; it is intersected by lesser ones from village to village.

Rivers.—There are none, but three large streams which take their rise from the Yamulgutt and Chinchalcote ridges of hills; the most conspicuous of these passes along the villages Kondapak, Doodhada, Velcutta, Mootahilla, Arjunputta and Kothapully, where it is met by another descending from Sanivarpett tank, passing by the villages Yachirane, Goorakoonda and Doonut, till to its junction with the former near Kothapully. The third, descending from Chinchalcote hills, passes by the villages Chuma, Moostial, Muddoor, Gaguilapoor and Koodrapully to its junction half a mile west of Lingapooram; these united form the river near Dhoolmetta.

Tanks.—There are several good ones which retain a large quantity of water throughout the year, and nourish a vast extent of paddy; their banks are broad and strong.

Terragoopla Pergunnah.—Terragoopla, the seat of the pergunna, consists of 30 villages, several of which are large and remarkable. The kusba is a straggling village with a small mud guddy, the residence of a Naib, situated on a rising ground between two large tanks. It is bordered north and south by a broad sheet of paddy, and on the west with dry grain cultivation. Roypurti, Beckul, Dhoolmetta, Umma-poor, Lingapoor and Katha are large villages having from 150 to 200 houses. Roypurti has a neat guddy and pagoda, and close north of it is a large tank which waters an extensive sheet of paddy. Beckul is only remarkable for a neat pagoda on a low detached rock close S. E. of the village. Iron is smelted and worked

here in great quantity. Dhoolmetta, Lingapoor and Katha are situated on the bank of a small river which takes its name from the former, as being the only village of note; it has a guddy and a pagoda. The two latter are well cultivated with paddy; the rest are small, from 60 to 80 houses. Ummapoor is an ordinary-sized village, situated close east of a fine stream and north of a large tank, and has a guddy. This pergunna has nothing particular to recommend it; its lands are limited and much overgrown with jungle.

Niddagoonda Pergunna.—The pergunna Niddagoonda comprises 34 villages situated in an almost open and undulating country interspersed with low jungle. The kusba is situated at the foot of a remarkable single bluff hill, adjoining which to the south is a fine large tank and a large expanse of wet cultivation. It has two subordinate villages eastward, called Narainpoor and Yelreddy-gooda, close to a small tope, the former being a mile distant and the latter $1\frac{1}{2}$ miles. The villages of any note in this pergunna are Nellootla, Gunnapoor, Kottapully, Goomdally, Teedkull, Zungaon, Isantapoor, Raganadapoor, Kondavaram and Shawpoor.

Nellootla is large and well inhabited, and has a subordinate, Potelgoodum, which is also of a middling size; these are situated half a mile south of a fine stream constantly wet, thickly lined with palmyra; the principal is remarkable for a neat guddy and tank nearly three-quarter of a mile north-west of the villages; it is surrounded by paddy fields, and two small tanks almost east and west.

Gunnapoor is situated half a mile south-east of a detached rocky hill (a secondary point), is large and well peopled, has a good guddy, its paddy lands are extensive and well nourished by several tanks. Kothapully is situated in the same fertile valley as the former, is a middle-sized village close S. E. of a remarkably large tank which feeds an extensive space of paddy, its banks strong and lined with palmyra, and retains water throughout the year. Goomdally lies between two tanks, north and south, is lined with extensive cultivation and well inhabited.

Jeedcull is a middle-sized village on the highroad to Hanimconda, has a neat guddy, and is remarkable for the sanctity of its pagoda, dedicated to Ramaswamy. An annual festival is observed here which is attended by a great concourse of people from various parts of the district, and some even assemble here from Bunder, Ellore, &c.; the jatra or teerthun lasts for several days. It is situated about a quarter of a mile east of the village on a flat low bunda or rock, and lies in latitude $17^{\circ} 36' 19''$ and longitude $79^{\circ} 12' 36''$, and is a secondary point of the Grand Trigonometrical Survey. Commodities of great value are exposed for sale during the time of the festival. Zungaon, Isantapoor and Raganadapoor are sizeable villages situated on the highroad from Hyderabad to Hanimconda; the former is a market town with a weekly fair; its lands are well laid out on wet and dry grain cultivation with several tanks which retain water for six months in the year. The two latter villages are also well supplied with water from tanks for irrigation. Kondawarrum, situated at the south end of a large tank, is a good-sized village, has a neat guddy, its lands are richly cultivated with wet and dry grain, and has also a subordinate, Kistna-gooda. Shawpoor is a large village with a well-built guddy of stone and mortar situated on a rising ground half a mile east of a ridge of hills; it has several mango groves; its cultivation is limited. The rest are small and merit no attention.

Koolpac Pergunna.—Koolpac is remarkable as a large and well-inhabited town, and the seat of the pergunna; it is situated at the junction of three large streams, whose tanks are richly cultivated with wet grain; after their junctions the stream is denominated the Allair river. It is the largest and the most respectable pergunna in the Circar.

The town is divided into several streets, and inhabited regularly and in order by the several castes; it has two guddies, and numerous pagodas noted for their sanctity; an annual fair and festival is celebrated here with great pomp; people from the remotest parts of the district assemble here for worship, which lasts several days.

The pergunna is composed of 48 villages, several of which are large and opulent; and those deserving attention are Butchanapett, Pachanpett, Yellomba, Siddangy,

Bondoogola and Koonay. Butchanapett and Pachanapett are the only opulent towns; situated on high ground, they have well-built guddies, and several bazar shops, with a weekly market. The inhabitants are chiefly Bunnias or Soukars, who generally trade in rice, ghee, oil, tamarind, cumblies, and a variety of other productions peculiar to the country. Pemberty and Yellemla are villages respectable in appearance, having from 100 to 150 houses; the former is situated on the highroad from Hyderabad to Hanimconda, and the latter is a mile north of the former, at the foot of a low broad rock with a pagoda on its top. Siddangy and Bondoogola are ordinary-sized villages of no note; the former has a pagoda, a mile and a half distant, on a rugged and steep rock, in a ruined state, and is a trigonometrical point, the latter has a pagoda close, a quarter of a mile, on a low bunda, and one in the village. These are well cultivated and peopled. Koonay, once remarkable for its size and opulence, is at present in a ruined state and neglected; a mile east is a high hill, a trigonometrical station.

Indeperal Pergunna.—Indeperal or Toomullagoodium Pergunna is small, consisting of eighteen principal and four subordinate villages; although the pergunna takes the former name, there are no traces of the village but a few remarkable pagodas which are dedicated to Pedda Moottial Ummen, held in great sanctity, and an annual festival is solemnized which lasts for the space of three months, with a regular fair, where all sorts of commodities, precious stones, pearls, and cloths of great value, &c., are exposed for sale. It is situated on a ruined hill-fort on the right bank of the Moosey river, lying in latitude $17^{\circ} 21'$ and longitude $79^{\circ} 6'$; the kusba having been ruined upwards of a century, its subordinate, Toomullagoodium, is now become the principal and the seat of the kutcherry and pergunna. It is situated $1\frac{1}{2}$ miles south of Indeperal, and at the south extremity of a remarkable large tank whose bank is strongly lined with stone and retains water throughout the year, by the assistance of a canal and dam on the Moosey river about five miles west, called the Rájkalooy, which was originally intended to supply an extensive tract of land, but at present it only supplies the tank above mentioned, and the wet cultivation (twice a year from the river) to the village; the other part of the channel is neglected and choked up in several places; it would cost an immense sum of money to bring it to its former state. The village is of a middling size, from 100 to 150 houses, with a pagoda and a ruined guddy. Ramanapett or Kothapett, one of the principal villages in the pergunna, is a trading town of some note; it has a guddy of stone and mud, cemented with lime here and there, and is the residence of a Jaghirdar; it is situated between a tank on the east and a remarkable durga on a ridge of black rocks, close west of which is a secondary point of the grand trigonometrical survey; here an annual celebration takes place, and is numerously attended by the surrounding inhabitants. The tank formerly was supplied by a canal, called the Pangul nulla, which is at present choked up and neglected. Its present supply depends entirely upon the periodical rains, and produces two successive crops. The inhabitants are of various castes, but the most opulent among them are the Bunnias, who traffic with the productions of the surrounding villages; it has a subordinate, situated three miles south of it in an extensive grove of palmyra, where abundance of toddy is extracted. Letchmapoor is situated on the bank of a canal half a mile from the right bank of the Moosey river, is a moderate-sized village, and only remarkable for its extensive paddy ground; the rest are of no note, all being small and wretched. Doobac is only noticed for the hill which is about two miles south-west of the village and is a trigonometrical point. There are several large tanks situated near the villages Galneepully, Neernaimla, Moompamla, Iskillah, Pochawarrum and Kuckerney, all of which are well supplied with water and produce large sheets of paddy cultivation yielding two crops annually. There are no traces of Pochawarrum but the large tank which takes its name.

Vamulcondu Pergunna.—Vamulconda, the kusba of the pergunna comprising 43 principal villages and 26 subordinates, of which Vamulconda, Pallairla, Koo-reyla, Pooleygillah, Raepac, Atmakoor, Rhymkhanpett, Soodulla, Vellaverty, Doopully, Paludgoo, Wonnapurty, Anuntawarum, Nealagopala and Wodagacherla, &c. &c., are of consequence. Vamulconda, about three furlongs from the north bank

of the Moosey river, and at the western extremity of a large tank, has a mud guddy and is the seat of the pergunna and kutcherry; it was formerly of note, with a square fort at the east in front of a cluster of hills (on one of which is a pagoda) which are about $2\frac{1}{2}$ miles north of its present situation; it is now removed from thence; it has extensive paddy cultivation up to the river, yielding two crops; the tank is well supplied with water by a canal from the Moosey river. Pullairla is large and well inhabited; in its centre are three towers built of stone and mortar, its streets are regular, with many bazar shops; it has a tank to the south; its paddy lands are very limited. Kooreyla is noted for a pagoda on a low hill or rock, and is a trigonometrical point of Colonel Lambton's; its lands are well cultivated with paddy, which is watered by two tanks about a mile east and west of the village. Pooleygellah is situated at the junction of two nullas, with an enclosure and guddy, has a large tank to the south-east, with a pagoda on a hill, at the east end of the tank about a mile from the village; it has two subordinate villages, which are well inhabited. Respac, although small, is well peopled, and has a small guddy at the S. W. angle of the village, with a tank, below the bank of which is a little paddy, and an extensive palmyra tope which produces a great quantity of toddy. Atmapoor was once a large village, it is at present in a declining state, has a ruined guddy and a large tank; it is situated on the right bank of the Chaddah river, which is thickly lined with palmyra trees which yield toddy in considerable quantity. Rhymkhau-pett is an ordinary-sized village, has two tanks to the west, and is the residence of a Deysmook. Soodulla is a large place consisting of about 200 houses, with a strong guddy; built of stone and mortar situated in the centre, which is the residence of the Deysmook; it has a tank to the west which retains water for six months in the year, and an extensive sheet of paddy is cultivated by it and a canal from the river; it lies situated 3 furlongs north of the Allair river. Doopully is large with irregular streets and is well peopled; it has a square guddy in its centre and is held in jaghir; about $1\frac{1}{2}$ miles S. E. is a large tank which is supplied with water from the Moosey river by a dam and canal situated near the village Vamulconda. Paludgoo, from its numerous ruined pagodas and a large broken tank to the east, must have been a place of considerable note formerly. The present guddy is also fast decaying. Wonpurty is a remarkable village situated on the highroad from Hyderabad to Hanimconda; it has a guddy in the centre, the residence of the Patail; it contains about 200 houses; a few tanks are seen in its vicinity, which produce a good supply of paddy; there is a ruined Jain pagoda about 2 furlongs north of the village, remarkable for its workmanship; several topes of mango, tamarind and palmyra are seen in its neighbourhood. Vellaverty is a large well-populated jaghir village with a guddy in its centre, and is the seat of the Jaghirdar's collector; it has two good tanks, one close S. W. of the village, and the other N. E.; from the western extremity of the latter a ridge of black rocks runs in a north-westerly direction for about 3 miles, then S. W. to the south end of Raepac tank; the paddy about this village is extensive, with a thick tope of palmyras; it has a subordinate, about $1\frac{1}{2}$ miles north, which is well peopled. Nealagopala is a small village, and only remarkable for a mosque where an annual festival is held. Wodagacherla can say nothing for itself, but its subordinate, Nabobpett, is a large market town with two good streets meeting each other at right angles, and in the centre stands the choultry of the Kutwal, has several bazar shops and a weekly fair or market takes place; it is situated on the south bank of a wet stream lined with palmyra; it has several tanks and plenty of wet cultivation. The remaining villages are all small and of no consequence.

Ratchconda Pergunnah.—A portion of the pergunnah has already been described in the year 1822, and the remaining villages of any note are Mulkapoor, Tungeedpully, Gokawarrum,* Goolarampully, Yellamanaid, Holoogoonda,* Gobnepully, Vellenka, Yenkarall, Pedda and Chirma Ravellapully, Javillakapully, Pachampully, Indereal and Zungaon. Mulkapoor is a rather large village situated on the highroad to Bunder, and is enclosed by ridges of hills; it has a large

* These two villages belong to the Havaley pergunna.

moosaferkhana and tank, with good encamping ground, and is a stage for travellers. Tungeedpully is a village six miles further on the Madras road ; it has a guddy almost in ruins. Sontoopul is a middle-sized village situated a quarter-mile north of the Bunder road, it has a tank, and some wet cultivation on both sides of the road. Gokawaram is a moderate-sized village, with a mud guddy, about a mile south of the Moosey river, and at the north extremity of a remarkable large tank which is supplied by a canal called the Pangul nulla, and retains water throughout the year, feeding an extensive sheet of paddy. It is the seat of the Jaghirdar's collector. A small pagoda is on the west side of the village, where ceremony is performed. The place is thickly studded with palmyra trees which yield abundance of toddy. Goolarampully, situated on the highroad to Bunder, is a large village with a neat moosaferkhana or choultry built by the late Prime Minister Meer Allum for the accommodation of travellers ; there is nothing else remarkable but a small pagoda on a bunda, which is a trigonometrical point. Yellamanaid, formerly a large village, at present is in a decaying state, $2\frac{1}{2}$ miles further east, and a few furlongs north of the Masulipatam road. Koloogoonda, although a middle-sized village, is well peopled ; it formerly was a place of strength, with a pentagonal fort which is now in ruins, as well as the guddy ; the cultivation about the village is very extensive, and is watered by two tanks to the west, which are supplied by the Moosey river. A large sugarloaf-shaped hill south of the village and on the right bank of the river has a few pagodas on its summit of some sanctity, but no fair or celebration is held in them. Golenpully is a small village, increasing in size, at the western extremity of a bank, and about a mile east of a remarkable hill which is a secondary point ; the cultivation about it is rather extensive, and watered by the Pangul canal, which flows only up to this place ; the palmyra tope to the west is very thick and extensive. Vellenka is a rather large village five miles N. E. of Goolarampully and four miles S. E. of Gokawaram. It has a few tanks, and a good supply of paddy. Yenkarall is a good-sized village situated about one mile north of the Moosey river ; it is in Tanka jaghir to three brothers, servants to the Prime Minister, who has allotted this place for their support instead of the usual salary. A gudda is seated in its centre, fast decaying. It consists of about 300 houses, and two subordinate villages eastward called Pallapad and Roodravully, at the distance of one and a half miles, close to the river. A large tank immediately adjoins the village to the south, which is supplied by a canal from the Moosey river, and retains water at all seasons ; there is a strong-built mosque two furlongs to the west of the village, which is in good order ; also a paper manufactory by which the city of Hyderabad is provided. Chinna and Pedda Ravellapully are situated five miles further to the east, the former on the north and the latter on the south bank of the Moosey river ; they are well inhabited and contain about 200 houses each ; the former has two subordinate villages, Poliagooda and Umbuttpully, and the latter only Soolepoor ; their cultivations are very extensive on both banks of the river, nourished by tanks and canals. Ragapoor has a large tank only to boast of, but the village is small.

Tanks.—The principal tanks in the Circar are situated at the following villages : viz., Samiarpett, Pedda Letchmapoor, Murkook, Cheyapurt, Sanearpett, Gundamulla, Cheyralla, Terragopla, Kondawaram, Anuntawaram, Bhonagheer, Chaddah, Gokawaram, Toomullagoodium and Allapoor, &c., all of which retain water throughout the year ; their banks are strongly built with stones, each of them has one or more flood gates or sluices, and their outlets are built of masonry.

Rivers.—The Moosey, which is the principal in the Circar, enters it a mile west of Pedda Raverall in latitude $17^{\circ} 24'$ and longitude $78^{\circ} 45'$, and descends almost due east along the villages Chota Raverall, Roodravally, Pedda and Chinna Ravellapully and Indereal, where it is met by the Peddavaug, thence to Sooriapully, where it is met by the Samiarpett river, thence it runs to Poodatoor, washes the foot of Haloogoonda hill, then passes between those of Indeperal and Loathkoonta, it then continues between Letchmapoor and Vamalconda, till it meets the eastern boundary of the Circar at the junction of a small nulla, whence it enters the Nelgoonda Circar, at the foot of Nagoolabanda hill pagoda station, in latitude $17^{\circ} 22' 4''$ and longitude $79^{\circ} 16' 45''$.

The Peddavaug, which takes its rise from the Ibbrahimpatam tank, enters the Circar two miles east of Batt Singaram, and descends through a rugged mass of hills, then between the villages Tookapully, Pachumpully and Duntoor, and falls into the Moosey $1\frac{1}{2}$ miles south-east of Inderal.

The Samiarpett river, which takes its rise from the tank of the same name, runs in an easterly direction through open and fertile country, receiving in its progress several lesser streams, and keeps along the villages Ulleabad, Kassaram, Wudmurry and Jallalpoor, where it takes a south-easterly course along the villages Mulyalla, Hanijuddapoor, Hajeepoor, Mylaram, Murreyalla, and meets a dam belonging to Bhonagheer and Beebeenuggur, one mile south of Wadapurty, whence it descends south along Maidpully, Moolamudgoo, then between Goodoor and Beebeenuggur, and takes an easterly direction along Unnumbutta, Muddumpully, till it meets the Bhonagheer nulla, whence it descends south by the east side of Bollapully, and falls into the Moosey river one mile east of Sooriapully.

The Chaddah takes its rise from the Bhonagheer hills, supplying in its course the tanks of Russawapoor and Ragheer, it then passes close north of Shollair and half a mile south of Motakadoor, beyond which it is met by another stream north of the village Chaddah, whence it derives its name and becomes conspicuous, meandering in an eastern direction through an extensive thick range of palmyras along the villages Atmakoor, Rhymkhanpett and Raepac, and quits the district half a mile west of its junction with the Allair river.

The Allair river is formed by several streams taking their rise from the hills to the north and west, the principal of which issues from the Kothal hills, which supplies the tanks of Veerlapully and Gundamulla, and passes north of the villages of Beygumpett and Sulloor, then meets a nulla from Rajapett, continues east for three miles and falls in with two other streams between half and one mile south of Koolpac, by which it is rendered conspicuous, and termed the Allair from the first village it meets, of that name, after quitting Koolpac; thence its general course is S. E., keeping along the villages Shoyagoodum and Koloor, where it is joined by another large stream that takes its rise from the hills of Joorkapully and Mullumpully, and continues its progress between the villages Gollamconda, Unnaboal, Anuntawarum, Taralla, Soodalla, Parpully and Modeengooda, where it quits the Circar boundary and meets the Thaddah, after which it is termed the Beckuler.

There is but one river to the northward, which takes its source from the Yamulgutt and Chinchalcote hills, forms various streams which unite near Dhoolmetta, passing close to Katha and Julpully, quits the boundary of the Circar and enters that of Malungoor.

Roads.—The military roads passing through this Circar are two; one enters it from Batt Singawaram, touching Mulkapoor, and passes close to a mosque near Koilagoodum, where it branches off, one to Masulipatam and the other to Madras, the former passes by the village Goolarampully, where there is a stone-built moosa-ferkhana for the accommodation of travellers, and quits the Circar two miles east of Peddakapurty. The latter road enters the villages Jangeedpully, Narainpoor, Cumpully, Cheekatamamdy, and quitting the district it enters Moonagood. The trading roads from Hyderabad through this Circar are to Yelgandel, Hanimconda, and Kummernett. The first of these enters it at nearly two miles south of Samiarpett, passing over the villages Koloor, Anuntawarum, Adavee Musjeed, Murkook, Cheyapurty, Seegoola, Kondapac and Doodhoda, and meets the boundary in common with the Medduck Circar three miles north of the latter village. The road to Hanimconda enters the district at Asuppoor, passes over Beebeenuggur, Goodoor, Bhonagheer, crosses the hills by an easy ascent to Sharnuggur, Ragheer, Vungapully, Ramajeepett, Allair, Pemberty, Zungaon, Isuntapoor and Ragoondapoor, where it runs over a table-height and meets the boundary common to Warungul. That of Kummernett branches off at Sharnuggur and passes over the villages of Shollair, Mator, Gollainconda, Jeedkul, Goomadally, Wonpurty, and Nealapagola, where it quits the boundary, and proceeds to Chinna Muddoor of the Warungul Circar. The four former are calculated for wheeled carriages.

GEOGRAPHICAL MEMOIR OF THE WORUNGUL CIRCAR.

1830-31.—The Circar of Worungul is situated between $17^{\circ} 24'$ and $18^{\circ} 24'$ of north latitude and $79^{\circ} 11'$ and $50^{\circ} 22'$ of east longitude, its boundary comprising an area of about 3,230 square miles, including detached portions of the Bhonagheer, Moolangoor and Nelgoondah Circars, which together may be estimated at about 36 square miles; the extreme length of the Circar from east to west is about 80 miles, and its breadth from north to south 70; it is bounded on the north by the Circars Ramgheer, Yelgundel and Molungoor, on the east by those of Ramgheer and Kummernett, to the west by Bhonagheer, and on the south by Kummernett and Nelgoonda. With the exception of a tract of country extending along the eastern boundary which is exceedingly hilly and mountainous, the general appearance of the country presents a level surface or rises into gentle slopes or swells, with numerous detached hills and rocks rising abruptly from the plain, in one or two instances they assume the form of mountain groups or run into ridges as they approach the eastern boundary; by far the greater portion of the Circar is entirely overrun with jungles, some open extensive plains situated towards the centre being the only exception. It is divided into 14 pergunnahs, viz. Havellee, Summoot Moonium, Kotagutt, Yelgoor, Kotajpoor, Valupkonda, Bolicondah, Purkul, Vizianuggur, Goteper, Pakhal, Oopul, Chundragheer and Hoossainabad or Kotakonda Pergunnah.

Pergunnahs and Principal Towns.—Havellee Pergunnah contains 78 principal and 5 subordinate villages; 10 of these are ruined and overrun with jungle; the few at present deserving notice are Warungul, Hunumcondah, Mutwarra and Gormazeepett.

Warungul, formerly capital of the ancient kingdom of Telingana, is situated in $17^{\circ} 57' 20''$ north latitude and $79^{\circ} 39' 34''$ east longitude according to Hamilton.

This place was founded about A.D. 1067, at which period it is supposed to have been the metropolis of Andray, or Telingana. In 1309 Allahud Deen, the Delhi sovereign, despatched an army against it by the route of Bengal, without success, but it was taken from the Hindoos in 1324 by Aligh Khan. It, however, again reverted to that ancient nation, and in 1421 its Rajah was slain in battle, and the place captured by Khan Azim Khan, the general of Ahmed Shah Bhamenee, the Sultan of the Deccan.

The town, which stands on an elevated plain, is defended by three different enclosures; the inner one, which is of solid masonry and still in good repair, is a figure of 24 sides with bastions at the angles, and formerly had four gates facing the cardinal points: one however, has been since built up. The town within the walls presents but a poor appearance, not a vestige of what we may imagine of its former magnificence remaining with the exception of four gateways or arches situated in the centre of the town, and which, according to a tradition amongst the natives, were the entrances to the ancient palace; they are composed of a species of dark green stone, and considerable taste is evinced in the ornaments with which they are embellished; a reservoir or tank situated within the fort supplies the inhabitants with water, and is fed by two small streams which pass through the works; the natives believe that immense treasures are concealed somewhere near the site of the old palace; the circumference of this enclosure is about 3 miles.

The second enclosure, between which and the inner one there is an interval of about 500 yards, is composed of an earthen mound or entrenchment, and forms a figure of 12 sides with towers or platforms of the same material at the angles, a wide and deep trench constantly supplied with water surrounding the whole; the space between the two enclosures with the exception of one or two patches of cultivation is waste and unoccupied.

The outer enclosure is an entrenchment of earth forming an irregular circle—its circumference is about 24 miles—defended also by a ditch; the natives, with their usual love of the marvellous, assert that four more enclosures, taking in an amazing extent of country, existed formerly, all traces of which, however, have been destroyed by time; it is difficult at this remote period to form an opinion as to the use made

of the space between the enclosures : though well-informed natives maintain that the whole area was laid out in houses and gardens, nothing remains at this day to corroborate the assertion, and we may suppose with far greater probability that the outer ramparts were raised as a protection against the cavalry of an enemy, or to afford shelter to their own. Hanumcondah, the present seat of the pergunnah, is an extensive and well-built walled town, containing upwards of a thousand houses, mostly tiled ; it is situated at the northern base of a rocky hill in latitude $18^{\circ} 1'$ north and $79^{\circ} 37' 57''$ east longitude ; the population is numerous, and it has a large and well-supplied bazar, an ancient Jain pagoda, remarkable for its thousand pillars, is situated in the centre of the town, but it is now neglected and in ruins. Mutwara, situated about a mile to the south-east of Hanumconda, is a thriving and populous town ; several opulent Bunias reside in this place, and carry on a considerable trade in the manufacture of various descriptions of cloths and carpets. Girmajeepett, which adjoins Mutwara, is also in a flourishing state and possesses several good bazar.

Summoot Munnium Pergunnah.—This pergunnah includes 40 principal and 15 subordinate villages ; of this number 26 are at present completely deserted and ruined. Ragoonda, the kusba, is situated on the highroad from Hyderabad to Mahadeopoor, in latitude $18^{\circ} 15' 28''$ north and $79^{\circ} 48' 20''$ east longitude, it appears to be in a ruinous and declining state.

Yachorlah is a village of considerable size situated at the base of a lofty ridge of hills, and the residence of a Zemindar. Bopdarum, situated close on the border of the large tank of Goonapoorum, though large, is now in a ruinous state ; it has a ghurry, and extensive fields of wet and dry cultivation.

Pullumpett, though a village of inconsiderable size, deserves notice on account of a pagoda in its immediate vicinity dedicated to Ramapahswamy ; the building is highly ornamented, some of the figures showing a very superior taste and execution to what is usually met with in works of this description ; it bears every appearance of the greatest antiquity, and though in a ruinous state is still held in great estimation as a place of worship ; an annual feast is celebrated at this place in February.

Kotagutt Pergunnah consists of 24 principal and 1 subordinate village ; of these, 9, including the kusba, are now in ruins. Atkoor is a large and populous village ; its cultivated lands, both wet and dry, are very extensive. Shaimpett, Kodapett and Kunparty are also villages of some note, with extensive tracts of cultivation attached to them.

Yelgoor Pergunnah.—The kusba of this pergunnah was formerly a town of some extent, situated at the base of a fortified hill, in latitude $17^{\circ} 52'$ north and longitude $79^{\circ} 47'$ east ; an old pagoda and a few tombs are now all that remain to mark its position ; the pergunnah consisted of nine principal villages, six of which are ruined, and the three remaining are small and insignificant.

Kotajpoor Pergunnah.—Kotajpoor, the kusba, composed of a few miserable huts, is situated about a mile south of the trigonometrical station of that name ; of the 13 villages composing this pergunnah, 10 are scarcely to be distinguished from the forests which surround them. Mutchurumpetta and Lechmapoor, as well as the kusba, are so thinly inhabited that large tracts of rice fields are left uncultivated and neglected from the great deficiency of labourers.

Valupkondah Pergunnah.—Zuffurghur, the kusba, is in latitude $17^{\circ} 46' 40''$ north and $79^{\circ} 30' 50''$ east longitude ; the town is situated between two fortified hills which protect it on the east and west, ramparts of solid masonry with bastions and deep ditches connect the fortifications on the two hills, and enclose the town to the north and south, the whole presenting an appearance of considerable strength ; the works are tolerably well furnished with ordnance, some of a large calibre ; the nominal strength of the garrison is 300 men, but a naib and 50 irregulars is the number actually retained ; the town within the walls consists of one or two tolerable streets, the remaining portion of the enclosed area is overrun with jungle and rank vegetation.

Bolicondah Pergunnah.—Of the kusba which gave its name to the pergunnah no trace is now to be seen ; it is said to have been situated at the eastern base

of the hill of Bolicondah, a primary station in latitude $17^{\circ} 42' 43''$, longitude $79^{\circ} 50' 21''$. Inkoortee, three miles south, is now the seat of the pergunnah. Kasamodrum, Danasarry, Venlikane, Kotripully, and Soorapully are ordinary-sized villages, each with extensive sheets of wet cultivation attached to it.

Purkul Pergunnah contains 13 principal villages. Purkul, the kusba, is situated in latitude $18^{\circ} 12' 20''$ north and $79^{\circ} 45'$ east longitude, on the highroad to Mahadeopoor. The village is large and straggling, with a ruined ghurly; the cultivation, which is extensive, is irrigated from a large tank a mile south of the village. Dumunnappett, 3 miles N. E. of Purkul, is a large village on the banks of a small stream which waters extensive sheets of rice cultivation. The rest of the villages attached to this pergunnah are small and thinly inhabited.

Viziarunggur Pergunnah.—This pergunnah contains 67 villages, 50 of which are tolerably well inhabited, the ruins of a mosque is all that remains of the ancient kusba, which was situated at the base of a hill fort of the same name, now also in ruins. Wurdunnappett, the present seat of the kusba, is an extensive and populous village, containing about 300 houses; a large tank in its vicinity serves to irrigate extensive fields of wet cultivation. Raepurty, next in importance to Wurdunnappett, is in a thriving and prosperous state.

Gotipurty Pergunnah.—This pergunnah consists of 11 villages, 6 only inhabited, the rest in ruins. Gotipurty, the kusba, is situated a mile north of Bundaramun hill pagoda, in latitude $17^{\circ} 29' 30''$ north, and longitude $79^{\circ} 38' 30''$ east; the town is in a tolerably thriving state, with a mud ghurly in good repair. Chittial and Jalalpoor are ordinary-sized villages with extensive tracts of wet cultivation in their vicinity; the rest of the villages belonging to this pergunnah are small and of no importance.

Pakhal Pergunnah, including the subordinate talook of Koorava, is composed of 114 villages, of which 50 are attached to the Pakhal division and 64 to Koorava. Pakhal, the kusba, situated in latitude $17^{\circ} 57' 30''$ north, and $79^{\circ} 59' 30''$ east longitude, and 2 miles west of the lake of the same name, is now in ruins. Survipoorum, the present seat of the pergunnah and the residence of a naib, is small and in a declining state; its lands are much neglected and overgrown with jungle—in short, the same remark is applicable to nearly the whole of the villages in the Pakhal division of this pergunnah. Dhurmarowpet, Dhorkapett, and Khanapoor may be mentioned as exceptions, their lands being in general well cultivated. The Koorava division, which is separated from Pakhal by a ridge of hills running nearly north and south, is throughout exceedingly hilly and mountainous, but in a comparatively prosperous state; it is inhabited by a hill tribe called Korwars, whose manners and customs differ very much from those of their neighbours in the eastern portion of the pergunnah, bearing a greater resemblance to the mode of life peculiar to the Gond tribes, of which they are probably a branch; their houses are composed entirely of bamboo and thatch and have generally several apartments; the men appear averse to anything in the shape of laborious drudgery; the cultivation of the small quantity of rice grown in the talook is left entirely to the few Telingas settled amongst them; the occupations of the hill tribes consist in felling timber, roving the forests with their bows and arrows in search of game, collecting honey, bees' wax, roots, &c., or in gathering the flowers of the Ippa^a tree, which are dried and reduced to powder; this made into cakes or porridge, forms their favourite and principal food for the greater part of the year; like the Gonds, they eat of the flesh of every animal, not even rejecting that of the cow; great quantities of an intoxicating spirit are distilled from the flowers of the Ippa tree, in which they frequently indulge to excess.

Oopul Pergunnah is composed of 30 principal and 3 subordinate villages. Oopul, the kusba, is situated on the western border of an extensive tank; the village is large and well built. Cumlapoor, situated on the opposite side of the tank, is also large and populous. The remaining villages of the pergunnah are small and of no note.

Chendragherry Pergunnah.—Chendragherry, formerly the kusba of 21 villages, is entirely ruined. The business of the kutcherry is now carried on at Ambol, a small

village with a ruined mud ghurry, about 8 miles west of Chendragherry. Though the remaining villages in this pergunnah are small and possess but a scanty population, the cultivation, both wet and dry, is very extensive. The Deysnook resides at Lhadalla, a small village situated on the highroad to Mahadeopett.

Kotaconda Pergunnah contains 33 principal and 3 subordinate villages, 8 are at present in ruins. Kotacondah, the kusbah, also in ruins, is situated at the base of a fortified hill in latitude $18^{\circ} 3' 30''$ north and $79^{\circ} 27'$ east longitude. Moolkanoor, the present seat of the kusbah, is a large village but apparently on the decline; a large tank about a mile west of the village waters an extensive sheet of rice cultivation.

Lakes, Tanks and Reservoirs.—The tanks, which are numerous and some of a very considerable size, occupy an area of about 120 square miles. The lake of Pakhal, situated 6 miles east of the village of Survapoorum, covers an extent of about 12 square miles, and is enclosed on every side by ranges of low jungly hills with the exception of a small space of about a mile in length to the westward, where its waters are retained by an artificial bund of considerable height and strength. On the centre of this bund an ancient stone-pillar is still to be seen with an inscription, supposed to contain an account of the erection of this work, but the characters (which are Telooگو) are put together with such an utter disregard to anything like order that scarcely half-a-dozen words are intelligible out of the whole, and these are invariably the name of some deity. At the base of the pillar is another stone placed horizontally, on which is a representation of two feet in an inverted position. The Brahmins in the neighbourhood assert that the work was completed by Prataparoodran, who reigned as king of Telingana about 800 years ago. The average depth of the lake may be about 5 or 6 fathoms; its waters are clear with a slight bitterish taste, and considered by the inhabitants to be extremely unwholesome. It abounds with fish, some of a very large description and excellent flavour. Alligators and otters (or an animal very nearly resembling the latter, called by the natives the water-dog), are also very numerous; almost every description of wild animal is to be found in the belt of jungle which surrounds the lake. As an inducement to the ryots to cultivate the lands in the vicinity of the lake, they are allowed to retain half the amount of the profits of the produce and pay the remainder to the Government in kind; but, owing to the extreme unhealthiness of the spot, even this encouragement produces a very inadequate return, seldom exceeding eighteen or twenty thousand rupees annually. However, in seasons of general drought the cultivators flock to the lake, as a never-failing resource, from all parts of the districts. In these cases from seventy to eighty thousand rupees is generally realized. Numerous other tanks of very considerable magnitude are scattered over the Circar; the principal are those of Ramapacherroo, Gunnawarum, Lukkenawarum, Nagawarum, Kumlapoor, Madanapett, Dermasagrurn, Hunumeonda, Rungumpett, Dummanapett, Mylawarum, Moolakoor and Woddapully.

Rivers and Streams.—Though the Circar is not watered by any stream of sufficient magnitude to deserve the name of river, still it is abundantly fertilized by innumerable small streams, some of which acquire considerable importance after they quit the Circar, especially the small stream passing from the Pakhal lake, which receives a considerable accession to its waters just as it reaches the boundary of the Circar, and passes near the town of Kunnummett as a river of considerable magnitude under the appellation of the Man-err.

Forests and Woods.—With the exception of the forests towards the eastern boundary, which are lofty and produce good timber, the greater portion of the jungles of the Circar are of small and stunted growth, and little used except in the construction of the huts of the natives and for the purpose of fuel.

Cattle and Animals.—The usual domestic animals, *viz.*, cows, buffaloes, goats, and sheep, are to be seen in considerable abundance throughout the Circar, but the last mentioned do not thrive, being very subject to a disease similar to the rot, which annually destroys great numbers; immense herds of half-wild cows, kept solely for the purposes of breeding, are also to be seen roving the jungles of the Circar, followed rather than led by their keepers, who allow the animals to select their own

pasturage, and wrapped up in their coarse blankets, their only defence in the severest weather, they sleep in the midst of their herds in whatever spot chance may have led them to. Almost every description of wild animal peculiar to India is to be found in the jungles of the Circar, especially in the forests towards the eastern boundary and in the vicinity of the Pakhal lake. Amongst others may be enumerated the tiger, leopard, bear, wolf, hyena, tiger-cats, jackals, hogs, bison, elk, neelgai, wild sheep, spotted deer, hog deer, common antelopes, goat antelopes, and a variety of others of the deer species, also a herd of fine elephants, the produce of a male and female formerly in a domesticated state; they escaped from their keepers and got into the jungles several years ago, and have since proved exceedingly troublesome to the ryots in the eastern portion of the district, where they destroy vast quantities of cultivation.

Minerals and Manufactures.—Iron ore of good quality is to be found in abundance at the base of the mountain group of which the primary station of Innaparater forms the principal peak: in fact iron enters largely into the general composition of this cluster of hills; the ore is found in nodules and fragments within a foot or two of the surface, and is carried away in considerable quantities and smelted in various parts of the Circar. The hills near Bhoputtpettah also produce vast quantities of iron ore, of a superior quality. The manufactures of the Circar consist of cloths, fine and coarse, a kind of coarse sugar or jaggery, in the distillation of spirits from the palmyra and other trees, and the making of carpets of various descriptions; the last mentioned is confined entirely to a few families residing in the village of Mutwara. The exports of the above-mentioned articles of manufacture are very inconsiderable.

Roads.—With the exception of the highroad from Hyderabad to Mahadeopoor, which is described in the Table of Highroads, none in the district deserve particular mention, as they are all in a wretched, neglected state, and in many instances entirely obliterated for the extent of a mile or so by tracts of wet cultivation. From the great number of instances I have observed of this injurious practice of destroying the communications throughout the Circar, and from inquiries I have made, I believe there is no law or regulation to deter the cultivators from acting in this particular as it may suit their convenience. In their present state I should imagine they would be quite impracticable for military purposes when the employment of heavy artillery is requisite.

Soil, Productions and mode of Husbandry.—In the elevated table-land which extends almost across the Circar from east to west a reddish-brown soil, well adapted to the cultivation of dry grain, appears to predominate. The same, with some few exceptions, may be said of nearly the whole of the western portion along the northern, southern and eastern boundaries; and extending a considerable distance towards the interior of the district a rich black mould prevails, which under proper management would in all probability prove extremely productive. Cholum, chunna, cooltee, cotton, tobacco, sugar and rice are cultivated throughout the Circar, but the cultivation of rice is carried to a very great extent. The mode of husbandry does not differ in any respect from that generally practised throughout the Nizam's dominions.

(Signed) H. MORLAND, Lieutenant,
Superintendent, Hyderabad Survey.

MEMOIR OF THE SURVEY OF PORTIONS OF THE FOLLOWING CIRCARS IN THE NIZAM'S DOMINIONS, NAMELY, KOILCONDAH, GUNNAPOOR, PANGUL, DEVERCONDAH, MULKHAID OR MUZAFURNUGUR, UNKLECOTE, EDAGHERRY AND KULBURGAH.

Groundwork of the Survey.—Colonel Lambton's series of meridional triangles between the measured bases at Gooty and Beedur, and his extension of these triangles longitudinally westward, forms the groundwork of this survey. His primary points, all laid down in latitude and longitude, pervade the whole work except on the Kulburgah side, where a few of Captain Garling's are used, which, however, have been carried on and depend upon the former. But, as these points intercept distances too great for the ready use of the practical surveyor, a minor triangulation has been introduced from the above data, in order to facilitate the taking up of the topographic details. A plan of these interpolated triangles accompanies the work, as also a register detailing the calculated results.

Extent and Limits.—The survey of this season is of great extent, comprehending a square superficies of 5,553·5 miles. Within this area are contained portions of the eight Circars above mentioned.

The parallel of latitude 17° 25' 28·6" confines it on the north, intersecting the Koilcondah, Unklecote, Mulkhaid and Kulburgah Circars. The southern and western boundaries are formed by the Kistnah and Bheemah rivers, and the meridian 78° 15' is about its eastern limit. The following table exhibits the area in square miles belonging to each Circar, and is descriptive of its character and condition :—

Sootah.	Circar.	Wet Cultivation.	Dry Cultivation.	Hills.	Slopes.	Total.
Hyderabad ...	Koilcondah	47·0	301·75	364·5	273·0	986·0
	Gunnampoor	74·75	119·0	92·0	188·0	473·75
	Devercondah	1·0	8·0	1·5	22·5	33·0
	Pangul	91·75	210·75	60·75	192·75	556·0
Beedur.....	Mulkhaid	149·75	1048·5	559·0	386·25	2143·75
	Unklecot	5·5	71·75	60·5	7·0	144·75
	Edagherry	9·0	171·0	119·0	21·5	320·5
Beejapoor	Kulburgah	13·75	533·75	271·25	77·0	895·75
		392·5	2464·5	1528·5	1168·0	5553·5

Manner of its execution.—The whole survey was first divided into three parallel portions, which I have called the northern, central, and southern sub-divisions of the work. The execution of the northern part was committed to Assistant Surveyors Hill and Ticker, the central was allotted to Messrs. Lang and Britain, and the southern to Mr. Chamarett. These portions were again subdivided into a series of field sections containing each about one hundred square miles. This is the unit of its construction. The original field copies are on a scale of two miles to the inch. From these, assisted by the field books, have been compiled sections of the whole survey on a scale of one mile to the inch, and a reduction of the originals into one general map on a scale of four miles to the inch.

The particulars of each surveyed division shall now be detailed in order, commencing with the northern.

DESCRIPTIVE MEMOIR OF THE NORTHERN PORTION OF THE HYDERABAD
SURVEY FOR THE YEAR 1824-25.

Situation.—This portion of survey is comprehended between the parallels of $17^{\circ} 2' 12.12''$ and $17^{\circ} 25' 28.6''$ north latitude, and between the longitudes $76^{\circ} 28' 47''$ and $77^{\circ} 39' 46.4''$ east of Greenwich.

Subdivision.—It includes parts of the Unklecote, Nulldroog, Kulburgah, Muzafernuggur, and Koilkondah Circars.

Boundaries.—On the north, east and south-east it connects with the Circars above mentioned. It is divided to the southward and south-west by the river Bheemah, which forms its boundary with the Suggur Circar, and on the west it joins with the Mahratta territories.

Extent and Area.—It contains an area of 1,957.5 square miles, portioned as per following table:—

Soobahship.	Circar.	Wet Cultiva- tion.	Dry Cultiva- tion.	Jungle.	Hills	Total.
Beejapoor	Part of Nulldroog .....	.....	00.5	.....	.....	00.5
	" Kulburga	13.75	533.75	271.25	77.0	895.75
	" Unklecote	5.5	71.75	60.5	7.0	144.75
Beedur.....	" Mulkhaid	11.5	316.75	223.25	18.0	569.5
Hyderabad	" Koilkondah.....	17.0	150.0	131.5	48.5	347.0
Total square miles ...		47.75	1092.75	686.5	150.5	1957.5

General Features of the country.—The country is formed of table-lands of several elevations, rising upwards of 2,000 feet above the level of the sea; but the survey, extending only to lat. $17^{\circ} 25' 28''$, takes in only the large valleys formed by the rivers, and composing high and extensive swells almost entirely open. The parts of those tables running in a parallel of nearly nine miles north of the Bheemah and Kangany rivers are the Tuttapully, Roomungood, and Allund. The direction they take is south-east and north-west. The ascents are craggy and abrupt.

Table-Lands, Hills, &c.—The Kottakodungule table, situated at the south-east corner of the work and south of the Kangany river, has its west and north faces craggy and steep. It runs in a south-easterly direction. Most of these falls are precipitous even to their bases. The plains upon their summits are of loose black earth and exceedingly pebbly, with scattered low jungle, much grass, and containing numerous well-inhabited villages. They are chiefly open, and cultivated with dry grains.

Gudjullapoor, Chundrakulla, Teklecode, and Purtrypully are stations determined on it.

The Turtapully table is high, exceedingly woody, and has but few villages, and those are mostly in a ruinous condition.

The southern skirts of the Allund and Roomungood tables, falling within the work in inconsiderable portions, will best appear in a future report.

Reyoor or Puddulayhal station is close east of a very conspicuous tree on a high swell at the north-western extremity of this portion of the survey.

Uttanoor tree and Pillor station are on a detached small table running north and south, about five miles and a half in length and one and a quarter broad; it is steep only on the eastern face.

Chennumgherry pagoda station is a small detached table hill, steep on all sides.

Gaboor station is upon a low but conspicuous summit, with an edifice called Laldi Mushace-ke-Chella, or generally known by the name of the town, situated a little more than two miles southerly of it. The point is at the western extremity of a small ridge of hills running east and west, and is about 1,929 feet above the level of the sea.

Hittul Sirroor is a conspicuous top among a few hills running east and west upon the Allund table; the town is situated some miles north of the work.

Kolkumma is a single detached hill with a Hindoo deity of that name on the Allund table.

Tand Tejjanoor is a detached top with a pagoda on a small table.

Koosanoor is a cluster of table-hills a mile southward of the village of the same name, and is about 2,045 feet above the level of the sea.

Kanlajtee is another group of table-hills; the centre and highest is the station.

Penchkulpully is a conspicuous rectangular detached table with a ruined turret on its summit.

Shaydumb is rather a large detached hill, very strong and scattered with low jungle.

Sant Peer is a conspicuous stony swell with a ruined turret, and on the high-road from Hyderabad to Kulburgah by Tandoor.

Katumdwarpully is a remarkable top with a pagoda at the south-east extremity of a small table upon it, and close to the right bank of the Kangany river.

Chittapoor station is a very high and strong swell. Besides these which have been enumerated above, there are a few others scattered here and there, but they are too inconsiderable to require a particular notice.

Rivers.—The principal river is the Bheemah. As a particular account of this has already been given in the Suggur survey, of which the present is a continuation, it is not deemed necessary to recapitulate the description.

The Kangani river takes its rise from the Anantagherri ghauts to the eastward and runs in a westerly direction. It has been treated of in a former report up to longitude $77^{\circ} 39' 46.4''$, from whence it traverses an extent of nearly 69 miles, and, receiving several lesser rivers and numerous nullahs in its course, falls into the Bheemah opposite the villages of Hoomogoontah and Yennajunty, 9 furlongs west of long. $76^{\circ} 2' 12.2''$. The soil over which it flows being the black loam, its banks are steep; its bed is sandy, has a constant stream, and varies in width from 200 to 400 yards. In many places are to be found strata of a soft slabstone, used much in building and roofing.

The Bennythoray is the next, which enters the survey, in latitude $17^{\circ} 25' 28.6''$ and longitude $77^{\circ} 5' 58.9''$; its course is winding in a south-east and southerly direction for about 22 miles, and it flows into the Kangany two miles north a little east of the capital, Mulkhaid. The banks of this river are steep; its bed is chiefly composed of the slabstone. It is from 200 to 300 yards wide.

The Moolamarr enters the survey in latitude $17^{\circ} 25' 28.6''$, traverses an extent of 13 miles, and falls into the Kangany one mile and a half east of the village of Juttoor, having steep earthy banks, sandy bed, and a width of between 150 and 200 yards.

The Moodyek nullah is a small stream taking its rise from the Kuddagemchy or Lukunoma hill pagoda station. It passes north of Kulburgah, proceeding in an easterly direction, and turning south, with a gentle course, it joins the Kangany river two miles and a half east of Kantumdwarhully hill pagoda station. It is about 100 yards broad, with low banks and a sandy bed.

The Merrudghully river has its source from the Alloor and Uthellair tables on the north. It enters the survey in latitude $17^{\circ} 25' 28.6''$, and, taking a southerly direction, unites with the Bheemah one mile and a quarter east of Kirkunhall. The banks are very generally low, but in some parts high. It is about 200 yards broad, its bed rocky and sandy, and is very subject to overflow.

Nullahs north of the Bheemah and Kangany.—The Uttanoor nullah joins the Mirrudge close to the village of Telloor. A large nullah rises from Koolkumma hill pagoda station, descends south and falls into the Bheemah; another takes its rise from the Kulburgah tables, passes by the village of Purrawatabad, and discharges itself into the Bheemah at Buttud Sarradaghy. A nullah rises from the Kusoonoor hills and falls into the Kangany at Golahkhoord. Three nullahs issue from the Roomungood tables; two proceed west and south and empty themselves into the Bennythoray; the other runs in a southerly direction and falls into the Kangany. A nullah also proceeds from the Tuttapully table lands, and running westerly meets the Moolamarr.

Nullahs south of the Kangany River.—A conspicuous nullah rises southward and flows north-easterly on the Kotakodungull table. It descends thence north and meets the river Kangany east of Nanapooram. Numerous small nullahs issue from the northern and western face of the Kotakodungull hills, and passing by Andaky and Kamsanpully fall into the Kangany near the village of Yedhully. A large nullah enters the work in latitude $17^{\circ} 2' 12.2''$, receiving several streams from the Kotakodungull table, passes by Sheydumb, where it is called the Sogil nullah, and meets the Kangany river south of the village of Yaddaghy. A smaller one enters also the survey in the same latitude near the village of Donagaon, and joins the Kangany river at the south-west angle of the town of Mulkhaid. There are numerous other petty streams, which are too inconsiderable for particular detail.

Moats are in frequent use on the banks of the rivers and nullahs, chiefly for garden produce, occasionally also for watering small patches of paddy cultivation, the chief productions of grain being of the dry kind.

Tanks.—Tanks are few in number, and are met with about the Kotakodungull hills in the Tandoor pergunnah of the Koilkondah Circar. The principal one is that belonging to the village of Joontapully, situated on a small irregular table surrounded by hills. It is strongly built of stone and has a constant supply of water.

Andaky and Kamsanpully have each a tank, and a large extent of paddy is cultivated below them, but they are dry in the hot season. A few others of small size are found here and there, which assist in the wet cultivation about the commencement of the rains. They are also used, while they last, for watering cattle, but are very easily, in the hot season, dry and parched up.

Wells.—The tanks just described are chiefly in the Koilkondah Circar to the eastward. In the western portion there are none. Innumerable wells are consequently in use, many of them well built with stone, and on a large scale. They are called pukkka wells. They are principally in use to supply the inhabitants with water, and some few are used in the cultivation of the sugarcane, paddy and gardens.

Springs.—Many of the nullahs, ravines and petty rills have springs at their sources on the summit and falls of the table-lands, and are exceedingly useful in the hot season, the villagers having constant recourse to them, and walking from their habitations a mile or two for a supply for their families.

Towns and Villages.—Kulburgah, the kusbah of the Circar of that name, is a large and populous city of late years, it having become famous after the decay of the old capital of Hussainabad, where now the Ch'hoore Goomuz stands. It consists of eleven suburbs, the whole designated at present Kulburgah Sawad Shopur, the "Musk city." It occupies a superficial area of three square miles, its greatest length being about $2\frac{1}{2}$ miles east and west, and breadth from north to south about a mile and a half. It has numerous bazars and shops, oil mills and looms. It is inhabited chiefly by Mussulmans, Lingawant Brahmins, and artificers of every description.

Feerozabad or Payrozabad was the intended city of the Beejapoor princes, who are said to have laid its foundation, but, owing to ill omen, was abandoned. The ruins of the palaces and buildings are seen in it. A small pettah adjoins the western walls. The present village of that name is pretty large, situated about a mile north a little west of it, and separated by a nullah that descends from the north and west of the durgah. They are both situated on the banks of the Bheemah.

Mulkhaid or Muzufurnuggur, the kusbah of the Circar, has the appearance of having been once a large and populous town. It is situated on the bank of the Kangany river; it is much deserted and dilapidated. It is, however, a principal place and is the residence of a killadaw.

Tandoor, the capital of a pergunnah, has two towns, one joining the fort to the east; the other, newly built and established, lies north about six furlongs from it, where the market is held.

Chittapoor, the kusbah of the pergunnah, is a large town; the former pettah was called Nagai, now entirely in ruins. The present is the place of residence of the amildars and some parah or small body of Seikhs and Arabs.

Mookoley, Andakey, Mylawarum, Niddoogoondah, Sooleygaon, Mungullahghy, Sheydumb, Korlah, Koodelly, Kanlaghee, Tengully, Dhundoty, Rawoor, Ingullaghee, Holian Seeroor, Surradaghy, Streenath, Heerapoorpett, Murtoor, Purwuthad, Buttud, Surradaghy, Heyroor, Gooboorboozrook, Uttanoor, Madayhull, and Nimball are all large and conspicuous towns, generally well populated, with bazar shops yielding a good revenue. There are numerous other villages of secondary magnitude and importance, and many small and insignificant, some of which are in a state of ruin and decay.

Markets.—Weekly markets are held in the towns of Gooboorboozrook, Mylawarum, Shawbad, Nallwar and Mulkhaid every Monday. Rawoor, Tengully, Kanlaghy and Korlah hold theirs on Tuesdays. Nimball, Heerapoorpett, Kurneycote, Chittapoor, Feerozabad and Moodolee on Wednesdays. Munnughull on Thursdays. Tandoor on Thursdays and Fridays. Madayhall, Sooleygaon, Holian Seeroor, Kodelly and Serrygherryptt on Fridays. Hangurgoondaghy, Khulburgah, Reyoorboozrook, and Hoonoogoontah on Saturdays. Uttanoor, Purrawattabad, and Dundoty on Sundays.

Of these Khulburgah, Koolcean Seeroor, Chittapoor, Sooleygaon and Tandoor are places of considerable trade, where a variety of commodities are exposed for sale; the remainder are small markets offering chiefly such manufactures and necessities as are consumed by the immediate neighbourhood.

Roads.—The country being open and flat, numerous roads intersect it, and they are almost all frequented and trading roads. The principal is that from Hyderabad proceeding westward and north of the Kangany river (it has been formerly treated of) to longitude $77^{\circ} 39' 46''$. In this part of the work it passes over Tandoor, Nuddagoondah, Mungullaghee, Surradaghee, Streenant, to Khulburgah, where they separate. The road to Poonah by Syed Chincholy quits the work close to Bheemahally and proceeds over Allund and Alloor. It crosses the Moolamarr, the Bennythoray and Mudjekhulla rivers and other smaller streams and nullahs. The other road leading to Sholapoor from Khulburgah passes Heerapoorpett, Gooboorboozrook, Uttanoor, and quits the work close west of Mattolee, 5 miles east of Ufzulpoor.

From Khulburgah to Saugur Shawpoor is another road over Purrawattabad, Butteed, Surradaghy and Feerozabad, where it crosses the Bheemah.

A road from Hyderabad to Khulburgah enters the work close to Bennoor and south of the Kangany river, passes over Ugganoor, Nowlgah, Koodoogoontah, Sheydumb and Mulkhaid, crosses the Kangany and Mudjekhulla rivers, and Goondagoorkhy to Sunnoor and Kanbajanoor.

Several roads are directed from Khulburgah to other capitals and market towns; the whole of these are traversed by laden bullocks and are very good, and except for the numerous rivers and nullahs which intersect them they might easily be traversed by good wheel-carriages, but they are not applied, and in their present state are not applicable, to such conveyances.

Nine miles only of the great road from Hyderabad to Khulburgah, which is thoroughly admissible for wheel-carriage communications, come within this work.

Passes, Ghauts, &c.—The country being formed of table-lands, as before described, the roads which traverse it have ascents, but they are all gentle and easy of access. Those which may be properly termed passes are the communications leading up the Tuttapully and Kotakodungull mountains.

Forts.—Khulburgah has a fortress, it is situated in the centre of the town, built strongly of granite and cemented with lime. It has a small low outer wall running parallel to the fort in semicircles. It has numerous bastions, one entrance having three large gates passable by elephants with their howdahs on, and four small wickets; it has a wet ditch. The whole is in good order. It contains a few guns, has a killidar with a small force of Arabs and Seikhs for a garrison. It contains some musjids, the minarets of which are plainly perceived without.

A party of the Nizam's horse of the Aurungabad division is stationed here.

Feerozabad is a large fort, built of stone, on the bank of the Bheemah river. It is nearly the figure of a square, six furlongs east and west, and five north and

south. At present it is in a very dilapidated condition, and is reported never to have been garrisoned.

Mulkhaid, Sheydumb and Kurmeycote have strong little forts, well constructed, and built with stones and in good order. Each of them is occupied by a party of Arabs and Seikhs.

Tandoor has a large mud fortification and a wet ditch, but the latter is passable in most parts with ease, and the whole of the works are neglected and decayed, although it is well garrisoned and is the residence of the amildar.

Many other villages have mud forts attached, with well-built walls, which are common to the country; some of them are in good repair. Many villages have only a high turret in the centre with a mud wall enclosure, but these are mostly in ruins.

Mosques and Pagodas.—Numerous musjids, some with domes and splendid minarets, are scattered about the country; of such Khulburgah contains the greatest number and variety. The Ch'hoor Goomuz is the most ancient one—a dome of a lofty durgah situated on a fine table-height west by north of the city, commanding an extensive view of the suburbs, whose former flourishing state is evinced by the numerous ruins scattered in every direction. It is strongly built, and stands on the spot which was formerly the capital and called Hussainabad. It is at present entirely neglected. It has derived its name from having been the receptacle of a robber who is reported to have amassed an immense property of wealth and jewels by continued and successful depredations for a series of years without detection, the Goomuz being his resort and store-room.

The dome over the tomb of the respected saint Kissu-du-Raz or Bundunawaz, also termed Budda Roza, with another smaller one close to it, called Chota Roza, both having small gilt spires and situated in a suburb east of the town, are the most esteemed places of devotion of the Mussalmans. These have many villages in jagheer for defraying their expenses, and an annual fair takes place on the 17th of the month Zalcadur, which lasts 30 days, and to which a large concourse of people of all classes and denominations resort. The taxes and emoluments derived within this period are appropriated by the managing Peerzadahs.

Burial places are numerous but chiefly in ruins; some monumental inscriptions are upon black stone, highly polished, and exceedingly well engraven.

The durgah of the ancient city of Feerozabad, dedicated to their saint Syed Ahmed Kneefee, is large and well built, having a gilt spire. It is endowed with some villages in jagheer and has an annual festival, which is held eleven furlongs north a little east of the fort.

The above are the most remarkable, but almost every village has a mosque, and many hold an annual fair. Such is the durgah at the village of Gotoor. That at Nimball, dedicated to Dustagherry Sahib, receives an amount of 217 rupees to defray its charges.

The Hindoo temples and edifices are mostly situated on the falls of the tablelands, and are called Umerruppas. Pagodas dedicated to Ramaswamy, Sheva and Lingum are seen in many villages, some very neatly built with a gopurum. Annual festivals are held at the following places:—Toontapully, Kanlaghy, Kodelly, Sooleygaon, Korewar, Hanball, Uttanoor, Madahall, Soogoor and Chennumgherry.

Forest Jungles.—The Tuttapully hills are the only portion covered with trees affording timber for buildings, implements of husbandry, and such uses. A scanty supply is derived from the woods in the villages and bases of the Kotakodungull hills. Low jungle for the purposes of fuel is to be met with everywhere; a dense date jungle lines almost all the nullahs.

Cattle, &c.—Buffaloes are in abundance, some few very large, but they are generally of a small description. They yield a plentiful supply of milk. Goats, sheep, hogs, tattoos, asses and fowls are much reared; wild hogs, antelopes, hares, pigeons, bustards, partridges, quails and peacocks are numerous; tigers, elks, spotted deer and aquatic birds are scarce.

Population.—The whole of this portion seems to have been formerly a rich, populous and flourishing tract, but it is now, from the exactions and mismanagement

of the native Government, and the oppression exercised by the jagheerdars and zemindars, deteriorated and impoverished. The population is far below its capabilities. The soil, although remarkably fine, is not cultivated to the extent it might be and it is left to the natural productions of grass and jungle.

The principal classes of people are the Lingawunts, Mussulmans and Brahmins.

Manufactures.—The manufactures consist of rich silk, coloured and white cloth of various textures, gunnies, tape, striped dungaries, muslins, plain and coloured handkerchiefs, turbans, carpets of a plain kind, mats of the date leaf, ornamented slippers, coarse sugar, castor, gingelly and linseed oils, cotton ropes, spirituous liquors, nitre, cumblies, bangles, brass utensils, gunpowder, leather, &c.

Trade.—An extensive trade is carried on at Khulburgah towards Punderpoor, Sholapoor, Poona, Soorapoor, Hyderabad and other places. The exports are chiefly the following :—Jawarry, carpets, cloths, cotton and gunnies. The imports are baize, barsaps, fine cloth, sugarcandy, white sugar, shawls, dates, raisins, coffee. Some of these articles are brought from Bombay.

Productions.—The soil throughout is a remarkably rich black loam, well adapted for the culture of various dry grains. The productions are the great millet or jawaree of two and three kinds, cotton, castor, gingelly, linseed, wheat of two kinds, sugarcane, ganjan, hemp, chirronjee for obtaining the red dye, bajeera, tama, paddy, kussumba, poppy or opium plants, tobacco, chillies, turmeric, onions, betel, coriander, fenugreek, mustard seed, Bengal grain or chick pea, oodeed, dhall, green grain, brinjals, goongoor, &c. The long-leaved Bassia, or Ippa Chettoo, grows spontaneous. Of fruits grapes, plantains, and oranges are to be had in small quantities. Toddy, extracted from the date trees, in abundance. Saury pupyoo, a sort of kernel very oily, obtained in the jungle.

Buildings.—There are no particular or ancient buildings that require any very minute description. All that are to be seen are the mosques and domes, which have been treated of under their respective heads. The dwellings of the inhabitants, however, almost throughout the whole of this tract, are built of the slabstone so very common in the country, which answer the purpose of building walls, roofing, &c. Using but a scanty supply of timber, they are two and three stories high. The poorer sort of people have thatched houses.

DESCRIPTIVE MEMOIR OF THE CENTRAL PART OF THE SURVEY.

Situation and Limits.—This central subdivision of the survey is comprehended between the parallels $16^{\circ} 38' 55.8''$, and $17^{\circ} 2' 12.2''$ north latitude, and between the meridians $76^{\circ} 45' 42.4''$ and $78^{\circ} 13' 33.9''$. It contains portions of the Coilcondah, Deveercondah and Gunnapoor Circars, belonging to the Soobahship of Hyderabad, and portions of the Muzufurnuggur or Mulkhaid and Gedagherry Circars, belonging to the Soobahship of Beedur. The superficial area of the whole tract is 2,205.5 square miles, distributed according to the following table :—

Soobahship.	Circar.	Wet Cultivation.	Dry Cultivation.	Hills.	Slopes.	TOTAL.
Hyderabad ...	Coilcondah ...	26.25	145.75	229.5	214.75	616.25
	Deveercondah ...	1.0	8.0	1.5	22.5	33.0
	Gunnapoor ...	23.75	57.0	61.0	98.25	242.0
Beedur ...	Mulkhaid ...	35.25	374.0	361.5	227.0	993.75
	Edagherry ...	9.0	171.0	119.0	21.5	320.5
TOTAL ...		87.25	755.75	727.5	584.0	2205.5

EDAGHERRY CIRCAR.

Edagherry is a pergunnah of the same Circar, in the Soobah of Beedur.

Boundaries.—It is bounded on the north and south-east by a high range of hills of a rugged aspect, and on the south and south-west by the Bheemah river.

Subdivisions.—It is divided into four putties, namely, Edagherry, Kanloor, Koloor and Yerragole, and comprises 70 villages.

Edagherry is the chief and most conspicuous village. It is situated on the right bank of a large stream about two miles north of the Bheemah, on the highroad from Soorapoor to Hyderabad. It has a fort on the summit of the hill, and the petta at the north foot of it is enclosed by a fortification. It appears to have been a place of considerable trade formerly, but now much fallen off. A weekly market is held there every Tuesday. It contains a killedar and a garrison of sebandy peons.

It has a large tank which retains water throughout the year and irrigates an extensive sheet of paddy cultivation and vegetable produce, yielding two crops annually.

Its manufactures are chintz and cloths, both fine and coarse, cumblies, brass and copper utensils, toddy and arrack.

Toomkoor and Tangaondy are two large and neat villages, situated about a mile and a half north of the river Bheema, and at the extremities of large tanks. They are populous and well cultivated.

Hullygherry is a moderate-sized village of about a hundred houses. It is remarkable for its situation and tank in a valley cultivated extensively with paddy, having a nullah thickly lined with date.

Mylapoor is a ruined village with a pagoda on the summit of a conical rock.

Ramsunoodrum is a small village situated off the road from Soorapoor to Hyderabad. North of it is a large tank which waters an extensive sheet of paddy.

Kowloor, the kusbah of a putty, is situated half a mile east of the river Bheemah. It has a neat guddy with a middling-sized town, well peopled and cultivated.

Kunchgarhully and Buswanthapoor are both small villages at the foot of a high ridge of hills and in a rich cultivated vale.

Urkeera is a small village almost in ruins. It is remarkable for a pagoda on the summit of a low ridge with a large tank at its foot.

Moondughee is a neat good-sized pettah, comprising about 200 houses, and holding a weekly market on Mondays.

Bellaherry is a moderate-sized village situated at the foot of a ridge of ghauts, and is the residing place of the zemindar.

Arral and Kookumbub are small villages in a fertile valley which yields two crops of paddy yearly.

Kempand is a large village situated in a glen surrounded by a ridge of ghauts dense with jungle.

Uly Kooney is a good-sized village of about a hundred houses, and remarkable for a few Jain pagodas.

Kotagherry and Motunhully, situated above the ghauts, are both large villages, containing about 150 houses each. The former has a guddy. Their chief produce is dry grain.

Yeragole, the kusbah of the putty, is a large village of about 350 houses. It has a ruined fort on the summit of a low hill, and a neat pagoda at the extremity of a sheet of wet cultivation.

Koloor, the kusbah of the putty, is a large village of about 350 houses. It is situated on the river Bheemah, near the junction of a large stream. It has several well-built pagodas and mosques and holds a weekly market.

Ladlapoor is remarkable for its qubur on the summit of a conical hill at the west extremity of the Soorkanoor table, and is a secondary point of the grand trigonometrical survey.

The remaining villages are all small and have nothing remarkable.

Roads.—The only road of importance passing through this portion is that from

Narrainpett to Edagherry and thence to Soorapoor. All the other internal communications are footpaths from village to village.

Rivers, &c.—The Bheemah is the only one, and is the south-west boundary. Several small streams intersect this tract. The one passing close to the town of Edagherry is about 50 yards wide.

Cattle.—Buffaloes, sheep and goats are numerous.

MULKHAID CIRCAR.

Boundaries.—The Mulkhaid or Muzafarnuggur Circar is bounded on the east by undulating slopes with intermediate high ridges of hills for nearly 20 miles, and passes over the ridge of Kotaycondra hills on the north (connecting them with first portion of this survey). It is intersected by an insulated portion of the Koilconda Circar, and is bounded on the west by the Edagherry Circar, over a ridge of table mountains to the Bheemah river.

Subdivisions, Towns, &c.—It is divided into the following pergunnahs, viz., Ootkoor, Kankoor and Chittapoor. Kankoor has again two subdivisions, Muddoor and Goodoomethcal.

Ootkoor, the seat and kusbah of that pergunnah, was formerly a large and populous petta, but is now falling fast into decay. It has a large guddy with a remarkable bastion, a trigonometrical point. It is situated at the south extremity of a large tank which contains water throughout the year and feeds an extensive sheet of paddy.

Narainpetta is a remarkable large town surrounded by a mud wall, and has a neat dome N. W. of the town, which is a trigonometrical point. It contains about a thousand houses and is a great manufacturing town. It has a mint from which the Narrainpett sicca is derived. It has a small guddy on the west, a nullah dividing it from the town. It trades extensively throughout the whole district. A large weekly market is held here.

Lokapoor is situated at the foot of a ghaut and is remarkable for its guddy. It appears to be in a declining state. It is the residence of the Rance and the chief officers of the pergunnah. It has a small neat pagoda on the top of a hill north of it. There are several tanks, and the land is well laid out in cultivation.

Kunkoor, the kusbah of the pergunnah, is a small wretched village. The cutcherry is held both at Muddoor and Goodoomethcal.

Goodoomethcal, the kusbah of the putty, is situated on the summit of a ghaut of the same name. It is a large and populous town. It has a ruined guddy to the north and south of it, and a pettah with several mosques and pagodas. It contains from five to six hundred houses. It is a place of trade, and holds a weekly market on Mondays similar to the one held at Narrainpett.

Muddoor, the kusbah of that putty, is a large village of about 400 houses, with a small guddy situated close south of a large stream, and a large Hindoo pagoda close west. It is well cultivated about with paddy. There is a mint here, from which is issued the Muddoor sicca. It is a place of considerable trade.

Chundrikee is a moderate-sized village containing about 200 houses. It has a guddy and several Hindoo temples and domes about, within neat enclosures, abounding with groves of fruit trees. The people are almost all Hindoos. It has several bazar shops and holds a weekly market.

Damurgiddah contains about 200 houses. It has several bazars. A number of weavers and Kassars are here. A market is held every Friday.

Halkutty is rather a large place, with a guddy well built with slate-stones and garrisoned by a party of Seikhs and peons. A weekly market is held here.

Alloor Boozrook and Sunkanoor are situated on the summit of a high table-hill. The former contains about 200 houses, irregularly scattered, and several Hindoo pagodas. A market is held here on Thursdays. The latter is in a wretched state. A primary point of Captain Garling's is situated about 4 furlongs south-west of the village.

Hulhully is another large village of about 150 houses surrounded by a mud wall. It has a weekly market; the rest of the villages are small, containing from 5 to 30 huts.

Manufactures.—The manufacturing and trading towns of this Circar supply the following articles :—Neat pictured cloths with silken borders, native turbans and handkerchiefs, cumblies, white cloths, brass and copper utensils, bangles, toddy, arrack, and a little salt.

Rivers.—There are none. Several streams intersect the country above described, but they are of small magnitude.

Roads.—There is no road capable of being traversed by wheel carriages. The common communication is not much beyond a footpath, adapted very well for passengers and travellers with laden bullocks.

Cattle.—Buffaloes, sheep and goats are to be had in great abundance.

KOILCONDAN CIRCAR.

General Features.—The part of the Koilcondah Circar comprised within this portion of the survey is very mountainous and of a harsh rugged character, the hills and elevated slopes amounting to somewhat more than two-thirds of its square extent.

Immediately about Koilcondah, south and west, a dense mass of high and rugged mountains with naked perpendicular rocky tops towering above each other presents itself. The ascents are inaccessible, consisting of rocky precipices, for the most part covered with thick jungle. The vast ridges of ghauts stretch from west to east.

There are several high ranges of hills to the north of Koilcondah ; of these the Poochmajut is the highest.

There are also several detached ridges close to the villages Poolabundah, Sulkirpett and Bulsuljoondah ; their ascents are abrupt and almost inaccessible, and covered with jungle—even the lowering slopes descend by very steep progressions.

Sub-divisions, Towns, &c.—Koilcondah, the kusbah of the Circar, lies in latitude $16^{\circ} 44' 48''$ and longitude $77^{\circ} 51' 10''$. A bastion on the hill-fort was determined as a secondary point in the grand trigonometrical survey.

The hill-fort or droog is very strongly built with cemented stones. It has a killedar and a number of peons, with several pieces of ordnance.

The town or petta is situated on the north immediately at its foot, and is surrounded by a ridge of hills ; but it is in a wretched state. It contains some ruined mosques and pagodas. There are several bazar shops and a weekly market is held.

It has several subordinate putties, of which Soorawarum, Goondmall, and Vunnawadah are contained in the work, as also parts of the Palaypully and Sowdoor putties.

Soorawarum, the kusbah of its putty, is almost in ruins, there only remain a few houses, belonging to the buckalls, and the cutcherry. It is situated at the south foot of a gentle declivity close to a small tank and some paddy fields.

Goondmall is a large village of about 250 houses, situated between a ridge of hills whose tops are crowned with pagodas. It has several tanks and well-cultivated sheets of paddy annexed to it on the west. It is the residence of the jagheerdar. It holds a weekly market.

Vunnawaddah is at present in a wretched state, but the heaps of ruins strewed about attest its former prosperity. It has a few bazar shops and is the residence of the deysmook, who is chief of the putty.

Polaypully, an insulated pully of Koilcondah, is a large village surrounded by a mud wall, containing about 200 houses with several bazar shops. It is situated in an open fertile valley, richly cultivated with wet and dry grain. It has several well-built tanks in the neighbourhood.

Mumhudbad is a principal village of about 100 houses, of which many are falling into ruins from desertion. It is in a declining state.

Luncherlah has a small guddy with a large pettah to the north but in a most wretched state. It has several bazar shops. It is situated at the foot of a range of hills. It has several tanks, and a well-cultivated glen on the south.

Gundaveed is a middling-sized village with a small guddy and pagoda. It has a well-cultivated glen.

Vennachaid is a large village with a small guddy.

Yelkacherlah is a moderate-sized village situated on the road from Koorghee to Hyderabad. It is remarkable for a pagoda on a bare rock a mile south-east of the village, where an annual festival takes place.

Koosghee, a puttee of Kodungull pergunnah, is a large, populous village of about 400 houses, having a number of bazar shops. It has a small ruined guddy. A weekly market is held here on a large scale every Sunday.

Kothapett, once a large and populous putty of the Kodungull pergunnah, has lapsed into insignificance and ruin.

Dhauletabad is a large village with a guddy situated at the extremity of a large tank. It consists of about 200 houses with several bazar shops. A weekly market is held here.

Kootmasumdrum, situated at the west foot of the Poochmagul range, was once a large and populous place, but it is now dwindled away. It has a large tank and cultivated glen.

Antawarum, Pootapad and Worawal are middling villages. The two former are situated at the foot of a ridge of hills, and are well cultivated, and thickly lined with palmyra trees extending to Worawal.

Goonjalapad, Jakawarum and Mulkapad are three insulated villages of the Chowdoor putty. They are small and wretched.

Rivers.—There are none. There is a large stream which takes its rise from the north-west and winds down south passing by the villages Roodramall, Moongulmullah, Mostpad, Beyawarum, Buktyullah, Komoor, Peddapoorum, Koosnamudpully, Ankellah, Moortipully, Gotoor, Pooslapad, and quits the work at Rowcondah after a distance of 35 miles. It has several tributary nullahs which descend from the high ridges of hills, and which give it the appearance of a small river. There is a constant supply of water in many parts of its bed throughout the year.

Roads.—A good military road enters this portion at the village of Davurkudrah, and passing by the villages Kotaykudrah and Palmoor, and thence to Jedchirlah, it meets the great road from Kurnool to Hyderabad. It is not at present much frequented.

The other roads which intersect this portion are of inferior note, and are paths from village to village for the purpose of communication between the districts. There are none of them adapted for wheel carriages, but only for foot travellers and bullocks.

Manufactures and Merchandize.—At the larger villages, where markets are held, the articles for sale consist of white and coloured coarse cloths, red handkerchiefs with deep borders used as turbans, cumblics, grains of sorts, tobacco, toddy and brass and copper utensils. Goondamal and Koorghee have the largest supplies.

Cattle.—Black cattle are very numerous and are much used in ploughing. The other kind of buffaloes are also used, but they are unwieldy, slow, and difficult of management, being besides incapable of great fatigue. Sheep, goats, asses and tattoos abound.

DEVERCONDA CIRCAR.

A portion of the Konadoor Pergunnah, with an insulated village, Teegalapully, is comprised within the limits of this survey. It is situated N. E. immediately above the Poochmagul ghauts. The villages are all small and insignificant with the exceptions of Koloor, Sowdoor and Yedra.

Koloor, the seat of the putty and the residence of a jemadar, is a large village of about 200 houses. It has several bazar shops, weavers and smiths. It is remarkable for its extensive paddy cultivation in a broad valley containing several tanks. It is surrounded by low jungle, and to the south there is a range of rugged hills.

Sowdoor is a middling large village containing about 100 houses, chiefly occupied by cultivators of the soil.

Yedra contains only about 50 houses. It is cultivated to a very small extent around, the low jungle skirting it thickly.

Teak Timber.—West of Sowdoor, near the Poochamagul ghaut, some teak trees grow in the forests, which are cut down for timber. But these and such large forest trees do not abound in the jungles, which are filled with those of a low and dwarfish growth. The jungles are very dense.

GUNNAPOOR CIRCAR.

Extent.—242 square miles of the purgunnahs of Bandapully, Tandkondah and Yennamungundah fall within this work (*vide* table).

Bandapully, the kusbah of the purgunnah, is situated on the highroad from Hyderabad to Kurnool at the north-east point of the grand series. It is a small village of about 80 houses. The seat of the cutcherry of this purgunnah is at Judcherlah, where the officers of Government reside. It is a small, inconsiderable village, has several pagodas, but going fast to decay.

Kowrumpett, subordinate to it, is rather a large town, situated about half a mile north-east on the same road. It has a bazar and holds a weekly market.

Alloor, situated on the highroad two miles and a half from Bandapully, is a middling-sized village in a fertile valley, having several tanks and an extensive paddy cultivation.

Kothapully is a small village close west of the road with nothing remarkable.

Mulgurrah is a moderate-sized village on the highroad, remarkable for its tanks and paddy lands.

Kurnah is a rather large village at the west foot of a jungly ridge. It has a small neat guddy, extensive cultivation, a bazar and a weekly market. It is the residence of a deysmook.

Boorgapully and Tandpurty are moderate-sized villages of about 70 houses. The former is remarkable for the number of its tanks and the extent of its cultivation. The remainder are small, containing from 10 to 30 houses.

Tondcondah, the kusbah of the purgunnah, is a large village, the seat of the cutcherry, and situated in a fertile valley.

Najasal, Ipullapully, Gazulpett and Anantasagur are villages in its neighbourhood of from 70 to 100 houses. The inhabitants are chiefly cultivators and weavers. These towns are flanked on the north and south by ridges of hills. Gazulpett is the residence of a deysmook.

Potallamuddago and Ravellapully are moderate-sized villages situated east of the highroad.

Palmoor, the putty and kusbah of that name, is a very large village enclosed by a mud wall with regular streets and bazars. It contains about 500 houses, several Hindoo temples, and neat wells for the use of travellers. It is situated between two tanks on the road to Judcherlah by Yenkendah, Uppunapully and Lunkaipully, a ruined village at the foot of the hills. It holds a weekly market well supplied with all useful articles. It has several tanks and a large sheet of paddy south.

Palkoondah, Dhumastapoor and Amistapoor are all middling-sized villages of from 40 to 80 houses, occupied by cultivators and cumbly-makers.

Chinna Dherpilly is a small village situated between ridges of hills.

Boypully, Dodalunpully and Simmaninpully are all small villages in a rich cultivated glen at the foot of a ridge of high jungly hills. The remaining villages are small and have nothing worthy of remark.

Yennamundgundlah, the kusbah, is in a ruinous state, but Nuvapett is the new town, and has a bazar and a weekly market, and is the residence of many opulent traders.

Murrikul is a middling-sized village with a small guddy and neat pagoda. It is a putty, having the following depending villages situated in a fertile and richly cultivated valley with dry and wet grains, *viz.*, Kulmonkolvoy, Kotapully, Goorgoontah, Mulkapoor and Kommawarum. They are all small.

Korcondah is a putty, small and of no note; all its depending villages are also small, but in a high state of cultivation.

Manufactures and Merchandize.—At the larger villages, where markets are held, the articles for sale consist of coarse and fine cloths, red handkerchiefs, pictured cloths, cumblies, gunnies, barsobs, rice, paddy and dry grains, mussala spices, ghee and oils, brass and copper utensils.

Roads.—The only roads to be noticed are the two highroads from Hyderabad to Gooty Kurnool, both passing by Jedcherlah, where they enter the lower or southern portion of the survey. They are wheel-carriage roads.

DESCRIPTIVE MEMOIR OF THE SOUTHERN DIVISION OF THE SURVEY.

This portion of the survey is included between the parallels of $16^{\circ} 4' 2''$ and $16^{\circ} 38' 55.8''$ north latitude, and between the longitudes $77^{\circ} 26' 15.4''$ and $78^{\circ} 13' 33.9''$, and comprises parts of Ghunnapoorah, Pangul and Mulkhaid Circars. The distribution of its square superficies is according to the following table :—

Soobahship.	Circars.	Wet Cultivation.	Dry Cultivation.	Hills.	Plains.	Total.
Hyderabad	Ghunnapoorah... ..	49.0	62.0	31.0	89.75	231.75
	Pangul	91.75	210.75	60.75	192.75	556.0
Beedur	Mulkhaid	113.0	357.75	19.5	14.175	613.75
	TOTAL	253.75	630.5	111.5	424.25	1419.5

The general features of this tract are not of a prominent kind. The surface is undulating, with few hills of any marked character. The soil in the swells and plains is a good reddish slightly mixed with sand. The low valleys are a soft loam. It is throughout fertile.

Ghunnapoorah Circar.

Of this Circar the whole of the Ghunnapoorah and Koondoor Purgunnahs are comprised within the limits of this part of the survey.

Principal Towns.—The chief villages contained in this tract are the following:—Ghunnapoorah, Manapett, Sankulmuddah, Kundoor, Rassallah, Peyroor, Oopupully, Daverkudrah, Peddamundadee. All these are large and populous, containing 150 to 200 houses each, most terraced. Kundoor, Manapett, Oopupully, and Rassallah are the residing places of deysmooks, and Daverkudrah of a naib.

Market Towns.—Ghunnapoorah holds a market on Sundays, Manapett on Tuesdays, Rassallah on Thursdays, and Daverkudrah on Wednesdays.

Tanks.—The principal tanks which contain water for any length of time are those at the following villages:—Ghunnapoorah, Rassallah, Nundypett, and Daverkudrah. They are said to contain a supply for six or eight months of the year. They water extensive sheets of paddy. The embankments are well flanked with stones and have very deep beds. They are entirely supplied by the periodical rains.

Roads.—The highroad to Kurnool from Hyderabad passes through this work, and runs upon the following villages as far as the Kistna river. Entering the section line at Jedcherla it touches upon Janumpett, Moosapett, Sankulmudree, Komreddypully, Shakapoor, Aduklah, Balladoopully, Kumraymettah, and here crossing a large stream to Kothacottah it proceeds by Unmoodoobalah, Monillapully, Malopully, Vinkatapoor, Jywarpully, Goomadam, thence to Bussarapoor, on the left bank of the Kistna river.

The highroad to Gooty through the Mooreycondah Ghaut enters the work at Jedcherlah and proceeds upon Mooligurra, Ghunnapoorah, Manapett, Soleepoor, Chittual, Wonnapurty; here it ascends the Wonnapurty ridge of hills (but the ascent is easy) to Pangul, where it quits the section line to Keythapully. These two are mercantile carriage roads at all times passable, and only offering slight impediments to communication during the heavy rains.

Hills.—There are several hills in this circar, all of which are detached and separated by valleys. They are composed of loose stones irregularly clustered together and forming lofty isolated hills with their summits covered with jungle.

Droogs.—Ghunnapoorah is the only droog in the circar of any strength or importance. It consists of a line of fortification encircling the whole hill, and is defended by bastions at almost equal distances from each other. The works are composed of stone and mortar cemented strongly together; but it is now decaying fast from age and want of repair. A remarkable bastion stands on the summit, called the Delhi-boorj, on which is a 12-pounder. This had been determined by Col. Lambton in his grand trigonometrical survey. The fort contains many pieces of ordnance, and is garrisoned by a killedar and a small party of peons. The pettah, situated at the foot of the hill on the north-west side, is irregularly scattered and is most populous. The highroad to Kurnool passes this.

Soil.—The soil throughout this portion of work is reddish and mixed with sand. The valleys and paddy grounds are chiefly of a black loam, but it does not appear to be very rich.

Manufactures.—Indigo is manufactured at Polkapully. Bangles, coarse cloths and cumblies are made at all the large villages. A small quantity of salt and salt-petre is also manufactured, also toddy and arrack.

Pangul Circar.

Of this circar there are portions of the Nagurkundanoor, Pangul and Juttpool, together with the whole of the Kotthacottah and Soogoor purgunnahs, that fall within this surveyed tract.

Chief Towns.—Pangul, the capital of the district and purgunnah, is situated on the highroad to Gooty. It is a hill-fort strongly built. They allow no access to it. It appears much stronger than Ghunnapoorah and in better order. The whole hill is encompassed by a line of fortification, and defended by several towers on the summit, over every one of which are seen a few pieces of ordnance. The pettah is situated on the north, surrounded by a mud wall, but in a wretched state. It contains an amildar, a killedar and a party of peons. It has a weekly market.

Wonnapurty, a large village in the Soogoor purgunnah, is in a flourishing state. It is the residence of a ranee or deysmooknee of the Soogoor and Kotthacottah purgunnahs. Here are several opulent merchants who carry on an extensive trade with the surrounding capitals. The soil about it is rich and fertile, and irrigated by numerous tanks. There is a small guddy or mud fort built round the ranee's residence, guarded by a large body of men. A weekly market is held here on Mondays. The highroad from Hyderabad to Gooty passes this.

Gopalpett is a larger place surrounded by a mud wall, and in the centre stands the guddy, round the house of the zemindar. It is defended by bastions at the angles. The streets are clean and regular, and the houses mostly terraced. The deysmook of this circar resides here. It is 5 miles north-east of Wonnapurty and 10 north of Pangul. It holds a weekly market.

Soogoor, the capital of the purgunnah, is situated 12 miles south-west of Pangul and $8\frac{1}{2}$ west of Pagtoor, north of the Kistna river. It is in a wretched state. It is encompassed by a ruined mud wall, and contains a granite pagoda and a remarkable granary. The soil around is very fertile, and there are two tanks in the neighbourhood which supply water for an extensive tract of cultivation. A nullah passes on each side of the village, both covered with a thick date jungle yielding a considerable revenue.

Kotthacottah is a large village situated on the highroad, and is 9 miles west of Wonnapurty and 17 north of Soogoor. It is so thickly covered with tamarind trees that the village is completely hid. The houses are all terraced. The fort, lying a little to the west, is entirely in ruins. There is a fine encamping ground to the north and east of the village. It is the kusbah of the purgunnah, and holds a weekly market.

Strelungapoor is a moderate-sized village situated $6\frac{1}{2}$ miles south-west of Pangul and $5\frac{1}{2}$ north-east of Soogoor. It is remarkable for its large tank, containing

a supply of water throughout the year. It is well built and substantial. The zemindar has a bungalow, erected in the centre upon an eminence, for his amusement and the reception of his visitors during days of festival, which take place annually at a pagoda situated upon a rock east of the tank.

Yettaloor, Singareddypully, Jalpomlah, Rungapoor, Yenkatapoor, Apparellah, Bekkium and Goomadam are large villages consisting of about 200 houses each, and have large tanks with a supply of water always for eight months, and in favourable seasons for the whole year. Their banks are strong and faced with stone cemented with chunam. The paddy cultivations are extensive.

Yenkatapoor, Kulvarallah and Ramkistnapoor have weekly markets. Toddy is drunk to excess by the inhabitants.

Nullahs.—Several take their rise from the hills to the north, and descending southerly supply the large tanks in the direction of their course. The largest of these is called the lesser Hookachettyvery, which rises in the Ghunnapoorah district, and is so rapid during the rains as to detain passengers two or three days. After receiving many lesser nullas it falls into the greater Hookachettyvery near the village of Gopunnappett. Several other nullas rise from the Wonnapurty hills, and, filling the large tanks in their progress, empty themselves into the Kistnah.

Manufactures and Produce.—Cumblies, coarse cloths, bangles, saltpetre and salt are manufactured. The produce is chiefly paddy, jawarry, chenna, til, moong, koolty, and other pulse; cotton is also sown.

Mulkhaid Circar.

Of this circar the whole of the Ammurchintah, Wuddaman, Muktal and parts of the Ootkoor and Kuddachoor purgunnahs fall within this tract.

Chief Towns.—Muktul is situated on the highroad from Bellary to Hyderabad. It is encompassed by a low mud wall, with an oval guddy to the east, defended by several bastions, and a ditch round the whole. It is populous, and a place of some trade. Ruins of Hindoo temples and mosques lie scattered about. The more opulent merchants have removed to Hyderabad. In the neighbourhood are several tanks and a rich cultivation. The amildar of the district resides here.

Ammurchintah is a large village, the capital of the purgunnah, containing about 500 houses, much scattered. It has a guddy, falling to ruins.

Atmakoor is a moderate-sized village, and is the residence of the zemindar of the Ammurchintah and Wuddaman purgunnahs. It is situated three miles S. E. of Ammurchintah. A weekly market is held here. The petta is separate from the village. There is a large pagoda in the pettah, and another in the bed of the tank, where annual feasts take place.

Wuddaman is situated $3\frac{1}{2}$ miles north-west of Gooramoorly hill station, at the junction of a small stream with the great Hookachettyvery. It is the capital of the purgunnah but is in a miserable state.

Lalcottah is a large village with a circular fort to the south containing 14 bastions and a high gateway, but all in ruins. A few sebandy peons are stationed here. The village is situated to the N. and E., and some of the houses are terraced.

Purreedpoor is a small village 3 miles south of the former, and remarkable for its large tank with water throughout the year.

Donnawaddah, 10 miles N. W. of Lalcottah, is also remarkable for its large tank. It has a guddy to the west. It is much scattered and is chiefly inhabited by weavers.

Poolmandy is a large village at the foot of a small ridge of red hills with a pagoda on its summit, a point of Col. Lambton's survey. The pettah is neatly laid out in regular streets, inhabited chiefly by Bunecas, who trade extensively. The fort is about 3 furlongs west of it, at the extremity of a small tank mostly in ruins.

Ajjulapoor is small but has a large tank, containing a supply of water throughout the year, and waters an extensive tract of paddy cultivation.

The remaining villages are insignificant.

Rivers and Nullahs.—The great Hookachettyvery, which takes its rise in the hills to the north, enters the work at Poosullapad, and descends in a southerly direction

to Wuddaman, where it is met by another from the outlet of the Donnawadda tank; thence it descends by the west side of the following villages:—Trinimullapoor, Goodoor, Kooreymuddu and Doopully, and is met by the lesser Hookachettyvery from the Ghunnappoorah district, opposite the village of Gopunnappett. It takes then a southerly direction over a fertile country till it discharges itself into the Kistnah river near the village Gorrumgudda Tippah. The banks are low and bed sandy, and it has a constant stream of water. The sides are well cultivated with paddy by means of small cut nullahs formed to irrigate the lands. It is about 2 furlongs broad.

The Suna takes its rise from the Impahgut and Kundakoor hills, and enters the work at Jagrum. It winds among the following villages—Idloor, Chelair, Somaishworbundah and Sungumbundah; it is there met by a nullah from the north-east and proceeds to Majanoor, where it crosses the highroad to Bellary and meets another large nullah from the outlet of the Ajjulapoor tank. It then shapes its course south-easterly, meeting in its progress several lesser streams till it discharges itself into the Kistnah river, opposite the village Pusopullah. It is above one furlong broad, with high banks and sandy bed.

The Yellallimavery is a narrow stream, taking its rise from the hills of Poolmamdy, and fills the Muntingood tank, the outlet of which forms this nullah. It is overspread with date jungle. It is about 100 yards broad. After receiving two small nullahs from the north-west and north-east it empties itself into the Kistnah river about 5 furlongs east of Moostopully.

The Kistnah river forms the southern boundary of this district. The whole of the islands in its bed belong to the Gudwal and Raichoor circars. It is the common receptacle of all the streams which have been detailed above.

Droogs.—Chundragudda and Goodabelloor are the only hill-forts. The former is of some strength, and built upon a solid rock. It is square with several stone bastions cemented with mortar, another small one adjoins it to the west, and is a step lower than the former through which the entrance leads, but it is much dilapidated. A pagoda, granary, magazine and a few pools of water are upon the summit. The works of the upper fort are in perfect good order.

The fort of Goodabelloor is composed of mud heaped up here and there, with a few bastions coarsely built with loose stones. It is in a state of entire ruin. A durgah stands on the summit on a solid rock. The highroad from Hyderabad to Bellary passes through this.

Koilkondah Circar.

A small portion of this circar not included in the preliminary table is included in this survey. It forms an area of about $22\frac{3}{4}$ square miles, $3\frac{1}{2}$ of which is under wet cultivation, 6 dry grain, $3\frac{1}{2}$ is hilly, and $9\frac{3}{4}$ plains.

Murrikull is the principal village, and is on the highroad from Hyderabad to Bellary. The deysmook resides here. The surrounding country is very fertile, abounding in tanks and paddy cultivation. It has a ruined guddy. Some opulent merchants reside here, who carry on some trade. There is a weekly market held.

Annexed is a detailed description of the boundaries of the Circars.

(Sd.) J. H. CRISP,
Surveyor, Nizam's Dominions.

GEOGRAPHICAL MEMOIR OF PART OF THE KOILKONDAH CIRCAR.

Its Situation, Extent and Boundaries.—The small portion of the Tandoor pergunnah of the Koilkondah Circar which has been surveyed is situated between latitude $17^{\circ} 24' N.$ and latitude $17^{\circ} 26' N.$, and in longitude $77^{\circ} 36'$, and is bounded on the west by the Mulkaid Circar. Its area is $331\frac{3}{4}$ British square miles, $105\frac{1}{2}$ being occupied by dry grain, $47\frac{1}{4}$ by waste land, $106\frac{3}{4}$ by jungle, and $72\frac{1}{4}$ by hills and slopes.

The portion of this circar which has been surveyed is overgrown with jungle, the village are small, and there is not sufficient matter for the formation of a separate memoir.

MEMOIR OF THE SURVEY OF THE NORTHERN PART OF THE CIRCAR
OF MULKHAID, OF THE SOUBAH OF BEEDER.

1. *Its Situation, Extent and Boundaries.*—This circar is bounded on the N. by the circar of Beeder, on the E. by the circar of Koilkondah, and on the W. by that of Kulburgah.

The area of the part surveyed is $331\frac{3}{4}$ British square miles, $105\frac{1}{2}$ square miles being occupied by dry grain, $47\frac{1}{4}$ by waste land, $106\frac{3}{4}$ by jungle, and $72\frac{1}{4}$ by hills.

2. *Divisions and their Boundaries.*—The portion surveyed is part of the Chincholy purgunnah, which contains 97 villages, some few of which were taken up in the year 1824. The divisions of the circar have not been ascertained.

3. *Capitals, Kusbahs, Droogs, Forts, Markets, Villages and other considerable places.*—Chincholy, the capital of the purgunnah of the same name, is situated on the east bank of the Moolamurry river in latitude $17^{\circ} 28' N.$ and longitude $77^{\circ} 28' E.$ It is a large village, covering about 25 square furlongs, surrounded by a wall of slates, which encloses a small fort of the same stone, and situated in the N. W. angle.

The houses are all built of slate, and roofed with the same, but the village is dirty, irregular, and its population a motley group, consisting of Mahrattas, Moors, Tellingas, and Pariahs; a market is held on Fridays, and there is a durgah of Landla Mashid which is of some note.

Yellamuddaghee.—A small but populous village, situated on a neck of land formed by the Moolamurry river and a small nullah falling into it. It bears N. $63^{\circ} 30'$ west from Chincholy fort, and is distant $12\frac{1}{2}$ miles; at this village there is a small fort built of slates; a market is held on Tuesdays.

Chimmunchoad.—A small but populous village, at which a market is held on Wednesdays. It is situated on the west bank of the Moolamurry river, and bears from Chincholy N. $64^{\circ} W.$ and is distant $9\frac{1}{2}$ miles.

Chemoi Gedlavoy.—A populous village of considerable extent, containing a small fort of slate, and 200 or 300 houses; it bears S. $50^{\circ} W.$ from Chincholy fort, and is distant $3\frac{1}{2}$ miles.

The other villages of this circar are partly deserted and in a ruinous state.

4. *Villages and Towns.*—For the actual position of each village see the Register of Villages.

5. *Rivers and Anicuts on them, and Canals.*—The only river is the Moolamurry, which enters this circar in latitude $17^{\circ} 34' 25'' N.$ and longitude $77^{\circ} 13' 20'' E.$, and thence winds east by the villages of Kolaghee, Gudoy, Lingudhully and Chennoor to Yellamuddaghee; the bed of the river throughout the course is of slates; its banks are high and it is commanded on both sides by very steep and rugged heights; from Yellamuddaghee it continues a south-easterly course by Nagaralla, Chimmunchoad, Koodkmooth, Goundonhully, and Neemanhully, to Chincholy, where a large branch joins it from the N. N. E.; on this course the river passes first through a dark vegetable soil and latterly through a red gravel; the bed is very slaty, and its banks high and rough, but it is not bounded by heights as on the last course. At Chincholy it takes a southerly course, and at the distance of four miles passes beyond the portion surveyed; this course is through a light gravel, and its bed is slaty. The bed of the river is covered with slabs of hard slate of various colours, of which the inhabitants of the adjacent villages construct both the walls and roofs of their houses, pagodas, &c. It affords plenty of fish, among which kubboose and a sort of catfish are the most common; the quantity of water is about six feet, and in the dry season it is collected in pools. There are no works on this river for irrigation.

6. *Lakes, Tunks and Reservoirs.*—There are no tanks in the circar save such as are for supplying the cattle with water.

7. *Mountains and Hills.*—The whole of the northern surface of this circar is much broken, and a considerable part occupied by steep rugged slopes. The following are the most remarkable of its features. A ridge of detached hills entering the circar $3\frac{1}{2}$ miles N. W. of Koobungooty station, and extending by the same to Ramangood station, which is on an extensive table-height, and thence to

Tandpully, one mile N. E. of which it terminates ; this is the continuation of the ghaut passing by Murgooty station in the Kulburgah Circar. The under features of the table on which these detached hills stand are very rugged, particularly along the Moolamurry river ; and on the south, as at Kubberwaddy, in many parts they form small detached hills, but too varied to admit of description. On the north of the village of Inapooraghaut or ridge of descent enters the circar in latitude $17^{\circ} 38' 15''$ N. and longitude $77^{\circ} 14' 45''$ E. ; this ghaut is a continuation of that in the Kulliannee Circar, above which Moodmy station is situated, and which extends through the whole of the Beeder Circar to this point. It extends S. E. by E. by the stations of Benkapilly, Muddaghee, Toomkanta and Kuloor to Chenerumpully station, whence it turns south to Lingudhully station, $3\frac{1}{2}$ miles S. E. of which it finally leaves the circar. This ghaut on entering the circar is not steep, but it gradually increases on its course towards the east, and at Lingudhully station the descent is about 400 feet ; the soil of which this descent is composed is gravel, which lies on a stratum of laterite rock ; the soil below the fall is a dark vegetable soil mixed with stones. The features on the east side of Lingudhully station are exceedingly rough.

8. *Forests, Woods and Jungle.*—The high grounds are for the most part covered with slight jungle, and in some parts it is rather dense, as at Kubbungooty station and Ramungudd dome, and all along the northern boundary about the station of Lingudhully, and along the whole eastern boundary, is an almost impenetrable jungle of trees, but there are no bamboos. The inhabitants of the neighbouring villages collect wood in this jungle, but it is chiefly for fuel, as there are no trees of a valuable description, the whole being undescribed jungle trees. A few date trees are scattered along the banks of the rivers.

9. *Establishments and Agrarums of Brahmins, Solliams, Jaghirs, &c., &c.*—There are no establishments of particular sects in this circar ; for those villages which are in jaghir see the Register of Villages.

10. *Cattle and Animals.*—Sheep and domestic cattle are the same as in the adjoining circars. The hills on the N. E., which are covered with jungle, are infested with royal tigers and cheetas, animals almost unknown in the adjacent circars of Nuldroog, Kulliannee and Kulburgah ; also there are a considerable number of elks, wild hogs, and a small quantity of game.

11. *Remarkable Buildings.*—None.

12. *Mines and Minerals.*—In the hills on the N. W. of the village of Toonkoontah, and one mile N. W. of the small station thereby, is an iron mine which is worked by the inhabitants of the above-mentioned villages.

The manufactures are coarse cloths, kumbliés and arrack.

MEMOIR OF THE SURVEY OF THE NORTHERN PART OF THE CIRCAR OF KULBURGAH, OF THE SOUBAH OF BEEDER.

Its Situation, Extent and Boundaries.—The circar of Kulburgah is bounded on the north by the Circar of Kulliannee, on the north-east by that of Beeder, and on the east by that of Mulkhaid. It comprises an area of 664 British square miles, $75\frac{1}{4}$ being occupied by hills, $588\frac{3}{4}$ by plains— $102\frac{3}{4}$ by waste land, $452\frac{3}{4}$ by dry cultivation, and $33\frac{1}{4}$ by low jungle.

Divisions and their Boundaries.—The portion surveyed is part of the Kulburgah pergunna of the Kulburgah circar. The subdivisions of the circar have not been ascertained.

Capitals, Droogs, Forts, Market-places and other considerable places.—Chenchunsoor, a large village about 10 miles S. S. W. of Kulburgah, in longitude $76^{\circ} 50' 10''$ E., and latitude $17^{\circ} 31' 40''$ N. It is surrounded by a mud wall, contains 10 or 12 bazars, and a market is held on Thursdays ; on the south-east side there is a pagoda dedicated to Bhavani, at which an annual festival is held which lasts fifteen days. The inhabitants are Mahrattas, Moors and Tellingahs.

Neeronee.—A small village bearing S. 83° W. from Chenchunsoor and distant $4\frac{3}{4}$ miles ; this village contains several bazars, and was once famous for its Peer. Neeronee station is on the high land $1\frac{1}{2}$ mile north-west of the fort.

Wagaderry.—A small village $4\frac{1}{2}$ miles N. N. E. of Chenchunsoor, which is

famous for a pagoda dedicated to Rachunna, to which a jatra takes place during the Devally feast.

Hoolgoondah.—A small village, on the heights above which are four remarkable domes surrounded by a wall, the largest of which has been used as a trigonometrical point, and is in latitude $17^{\circ} 31' 53''$ N. and longitude $77^{\circ} 1' 20''$ E. In the absence of certain information it may be supposed that these domes are either the places of sepulchre of some part of the Bommunny Badhais family, who have held this village in jaghir, or that they are the durgahs of some Mahomedan saint and three of his descendants. The largest dome is only about fifty feet high, but from its elevated situation it is to be seen from all parts of the country.

Jevunjee.—A village covering about six square furlongs and enclosed by a mud wall. It bears from Chenchunsoor due east, and is distant sixteen miles. This village is the jaghir of Ruffutam Moolk. It contains several bazars, and a market is held once a week. The inhabitants are chiefly Mahrattas and Mussulmans.

Rutkul.—A village covering about six square furlongs and surrounded by a mud wall. It bears S. 77° E. from Chenchunsoor, and is distant 22 miles. At this village a market is held on Fridays; also a few coarse cloths, cumblies and arrack are manufactured.

Mangaon.—A large village, bearing $8\frac{1}{4}$ miles east from Chenchunsoor, at which a few coarse cloths are manufactured.

Dooturgaon.—A large village, surrounded by a mud wall, which contains several bazars, and at which a market is held once a week. It bears from Chenchunsoor S. 70° W. and is distant $11\frac{1}{2}$ miles.

Pett Kumlapoor.—A large village covering about seven square furlongs, bearing from Chenchunsoor N. 75° E. and distant $13\frac{3}{4}$ miles. It has a fort situated on a small hill in its centre, and contains a large pagoda, a mutt and 10 or 13 bazars. The inhabitants are chiefly Mahrattas and Mahomedans. Also a few coarse cloths, kumbliies and arrack are manufactured at this village, and a market is held on Sundays.

Ursoor.—A small village inhabited chiefly by Mahrattas and Mahomedans. It bears S. 63° E. from Chenchunsoor, is distant $13\frac{3}{4}$ miles, and contains 10 or 13 bazars. A market is held on Saturdays.

Sonath.—A small village bearing N. 74° E. from Chenchunsoor and distant $20\frac{1}{2}$ miles, at which a market is held on Fridays, and a few coarse cloths and kumbliies are manufactured. At this village is a large pagoda dedicated to Rachunna.

Ballumbee.—A small village bearing N. $23\frac{1}{2}^{\circ}$ W. from Chenchunsoor and distant $2\frac{1}{2}$ miles, at which a market is held on Thursdays.

4. *Villages and Towns.*—For the actual position of every village see the Register of Villages.

5. *Rivers and Anicuts on them, and Canals.*—Bennithora River.—This river enters the circar near the village of Singi, and takes a southerly course to Belgoonda, from which it takes a south-easterly course, and passes by Kowlah, Bettjawargah, Udlah and Ubehund to Mangaon, where a large nulla falls in, which rises near Chilla, in the Kulliannee circar. It after continues the same general course, but with much winding, and passing by the villages of Tondkul, Kuddaloor, Kunnudgee, Sheylugee, passes, beyond the part surveyed, on the south of Tonchy. This river is of considerable breadth, and contains several feet of water throughout the year, but there are no works for irrigation on it.

Moolamurry.—This river enters the north-east extremity of the circar near Dhanoor, and runs south-east by the villages of Kinny, Hoonhully and Potewathee to Khanapoor tree station, half mile west of which it finally leaves the circar; during part of its course it defines the boundary.

6. *Lakes, Tanks, Reservoirs.*—The few small tanks which are scattered over the circar are only for supplying the cattle with water.

7. *Mountains, Hills, &c.*—The whole of the northern part of this circar is very hilly, and a considerable part is occupied by slopes so steep and rough as to be totally unfit for cultivation. The most considerable ghaut is that which enters the circar at $4\frac{1}{2}$ miles W. of Murgooty station, and extends S. 11° E. to near Kubbungooty station, where it passes the boundary, and detached hills extend far into the Mulkhaid circar. This ghaut or descent is very steep, and on the south of

Murgooty station, which is the steepest part, is about 300 feet, and nearly perpendicular, but on its course to the S. E. it gradually diminishes. From this ridge several long table-lands run off and form under-features; the most remarkable is that which extends from the south of Murgooty by Pett Kumlapoor to Hoolgoonda dome station; these long table-lands are in directions nearly parallel to themselves: towards the south-east they lower, and finally disappear in a wavy country.

A small ghaut or ridge of a descent of about 70 feet enters the circar on the west of Sullagarra station, but is so irregular that it cannot be described. On referring to the map it may be traced along the Bennithora river, forming the boundary of a high land, and extending, as such, by Kowlah to Muddakee station, and thence to the west of Murgooty station, where are two small tops of hills. It joins the main ridge of the descent as an under-feature.

The stations of Tudkul, Nerronee, Chenchunsoor, Boosgee, Gunjunkhaid and Holgood are situated on high land, which is bounded on the south and east by a small ghaut or descent which commences near Lingudhully, and may be traced on the map to Savulgee, Chenchunsoor station and Boogee station, where it turns west, and runs almost direct to Lukama station, whence it runs south, and returning pursues a westerly course for $4\frac{1}{2}$ miles and disappears in a wavy country. The hill upon which the stations of Holgood and Gunjunkhaid are situated is a long detached table, proceeding from the high land last mentioned; about Dhanoor and Zavally there is a small rough descent, and with this excepted the whole of the remaining surface is a wavy country.

8. *Forests, Woods and Jungles.*—The tops of the hills are generally covered with small bushes, but there are no woods nor jungles, and with the exception of the trees in the vicinity of the villages there are none in the circar.

9. *Establishments of Brahmins, &c.*—There are no establishments of religious sects in the circar; for the villages that are held in jaghirsee the Register of Villages.

10. *Cattle and Animals.*—The cattle and animals in this circar are the same as those in other parts of the country. Antelopes are rather numerous on the plains, but there is but little game, and probably no wild beasts.

11. *Remarkable Buildings.*—All the remarkable buildings in this circar are situated in or about the city of Kulburgah, which is beyond the portion surveyed; of those situated within the part surveyed the most remarkable are the Hoolgoonda durgahs and the pagodas of Chenchunsoor and Rovoy.

12. *Mines, Minerals and Manufactures.*—There are neither mines nor minerals in the circar. The manufactures are coarse cloths, cumblies, arrack, and jaghry, &c.

13. *Roads, Passes and Defiles.*—The highroad which passes through this circar does not fall within the portion surveyed; there is, however, a small bullock-road leading from Kulburgah to Annabad, which passes by the following villages:—Gunjunkhaid, Bunnor, Kuggannoody, Mangaon, Dustapoor, Nawandgee, Kumlapoor, Rajasoor, Rajanall, Kunnyghee and Huddikial, after which it leaves the circar.

There is also a small road leading from Kulburgah to Allund, via the villages of Syed, Chincholy, Bomanhully, Golah Boozroog, Seloar, Dhonor and Kullungurgah.

14. *Soil, Productions and Mode of Husbandry.*—The soil of this circar is throughout of a reddish gravel, but in particular parts it partakes of black earth or cotton soil. The table-heights are generally of a gravelly soil intermixed with round stones, but admitting of cultivation.

The grains commonly grown are pulse of various sorts, jowarry, bajree, wheat, jow, chenna, koolty, green grain, pignuts, lunka, linseed, til and koosumbah: from the three latter oil is extracted. The garden productions are brinjals, chillies, onions, ginger, saffron and garlic, with some radishes and carrots. The sugarcane is cultivated in almost every village, and arrack and coarse sugar manufactured from the same. Date trees are not very abundant, but they are to be seen occasionally scattered about the villages of Nerroonee, Munhully, Ipperghah Umblagah, Soogoor, Mooknimly and Rutkul. Toddy and arrack and coarse sugar are manufactured by the villagers from their juice. The cultivation throughout consists generally of dry grain, but the quantity of garden cultivation is considerable and might be much increased, water being generally procurable at the depth of 10 or 20 feet.

GEOGRAPHICAL MEMOIR OF THE BHEER CIRCAR, OF THE SOUBAH OF AURUNGABAD, OF THE NIZAM'S DOMINIONS.

1. *Its Situation, Extent and Boundaries.*—The Bheer circar is bounded on the north by the Umber or Pyetmo circar, on the north-east by Pathree, on the east by Futtahabad or Darroor, on the south-east by Nuldroog, on the south by Purrainda and the Panch Mahal, and on the west by the collectorate of Ahmednuggur. Its figure is compact and somewhat oval, measuring from east to west 68 British miles, and from north to south 62 miles. The superficial content of the part surveyed amounts to 1,215 square miles, of which 255½ miles are occupied by hills and slopes, 663 miles by dry cultivation, and 296¾ miles are lying waste.

2. *Divisions and their Boundaries.*—It is divided into six pergunnas, namely, 1 Bheer, 2 Gavorai, 3 Talkhair, 4 Patrood, 5 Ballaghat, 6 Mannoor; of these Ballaghat is subdivided into four talooks, namely, Pargaon, Boorkhaid, Yellum, and Potada, and Manoor has a talook called Gurgay Amba. For a general list of the villages, &c., see the Register of Villages and Description of Boundaries.

3. *Capitals, Cusbahs, Droogs, Forts, Market-places and other considerable places.*—Bheer, the capital of the circar, is situated on the left bank of the Bensura river in N. latitude 18° 59' 26", E. longitude 75° 48' 42". It is an ancient town of little note, and at present enclosed by a wall 30 feet high having a basement of stone, and which with the exception of the eastern face—washed by the river, and strongly built—is in a general state of decay. The town within the walls covers 18 square furlongs and contains 2,000 houses, 200 bazars, and 25 shambles or butchers' stalls. The pettah occupies the right bank of the river and is more extensive than the town, covering 26 square furlongs, but much scattered and divided by several nullas; the southern part is occupied by weavers, the centre by mendicants and pensioners of various denominations who have charge of the eedgah, and several buildings in the vicinity and the remaining parts towards the centre and north by the followers of those in the service of the Ummeer Nuwaz Khau, who with his relations resides at Bheer during part of the year; he also farms the circar and has several jaghirs in the same. In the northern part of the petta a bazar is held on Fridays for cattle and on Sundays for grain, but the grand bazar is in the centre of the town, and the shops (many of which are excellent and have a few articles of European and China manufacture exposed for sale) line the streets leading to the gates. The houses are built of mud, a few are tiled and others flat-roofed; those of the Ummeer and his relations are also of a mean description, and with the exception of a tippookolum one furlong square, an eedgah, and an ancient pagoda in the suburbs, there are no buildings of any description; there are, however, a few good carriage roads, which the Ummeer has constructed for his convenience: that leading from the south gate towards the hills is 2½ miles in length, and at the crossing of the river the huge rock stones which cover its bed so as to obstruct the passage have been carefully removed. On the west bank there is a small quantity of fine cultivation, gardens and topes, watered by a small canal cut from the river at the opening of the hills. In the centre of the petta there is also a famous vineyard where the Hubuthee grape is grown in great perfection. The only manufactures are a few coarse cloths, hair kumbles and Arab horse-cloths which much resemble padding, coarse writing-paper, and a few cloths with worked silk borders. The eedgah in the petta, erected to the memory of Caja Peer, is of much sanctity, and frequented by Hindoos and Mussulmans, and an oorus is observed which lasts one week.

The pagoda on the height to the N. E. and distant 1¼ miles, dedicated to Khundobah, is neglected and in ruins. It has at the gateway two high and very remarkable dekmalls, or pillars for lamps, the northernmost of which bears N. 57° 20' 50" W. from the Mecca mosque at Hyderabad, and is distant 207·20 miles, being in N. latitude 19° 0' 20" and E. longitude 75° 49' 29·2".

Rajooi.—A jaghir village containing about 500 houses and 12 shops, at which a market is held on Thursdays. It is surrounded by a wall, has a small guddy

in its centre, and is situated on the right bank of the Doombri, on the road from Bheer to Poona, by Mannoor, N. latitude $19^{\circ} 0' 5''$ and E. longitude $75^{\circ} 29' 6''$.

Rhyno.—A large jaghir village belonging to a faqueer. It contains about 500 houses and 30 shops, also a very fine stone guddy in good repair, and covers an extent of about six square furlongs; the part to the north is enclosed, but that to the east of the guddy, where the shops are situated, and where a market is held on Monday, is open. A few brass pots and common cloths are made. N. latitude $18^{\circ} 59' 39''$, E. longitude $75^{\circ} 32' 52''$. Amba, or Gurgay Amba, is the capital of a talook of the Mannoor pergunna, and is situated on the highroad to Yellem, and on the Amba-leath river, which divides the town in two nearly equal parts, both of which are surrounded by walls, but now in ruins. It contains about 400 houses and ten shops, and a well-supplied market is held on Sunday; there are also several small pagodas in the vicinity, and numerous topes of mango and tamarind trees, also extensive cultivation of sugar, &c. N. latitude $19^{\circ} 13' 59''$, E. longitude $75^{\circ} 32' 14''$.

Oomraid.—A large walled village containing 300 houses and about 8 shops, at which a market is held on Thursdays. N. latitude $19^{\circ} 17' 55''$, E. longitude $75^{\circ} 38' 44''$.

Amulnair.—A village belonging to Ahmednuggur collectorate, contains about 80 houses and 20 shops, at which a market is held on Fridays and Sundays. The houses are principally built of stone, and also the enclosure walls. There is a large durga on its east and several mango topes. N. latitude $18^{\circ} 56' 36''$, E. longitude $75^{\circ} 22' 18''$.

Dunger Kinnee.—An insulated village of the Ahmednuggur collectorate. It is enclosed by a stone wall, has a high guddy in its centre, and contains 300 houses and 15 shops. The houses are principally built of stone. There is a fine tope of mango trees on the north, also a small durga on the height $1\frac{1}{2}$ miles to the east. A market is held on Sundays. N. latitude $18^{\circ} 55' 26''$, E. longitude $75^{\circ} 29' 8''$.

Dombri.—A small village containing about 200 houses and 10 or 12 shops, at which a grand market is held on Mondays; at this village there is a tope of mango trees, also one of palm-tree. N. latitude $18^{\circ} 54' 8''$; E. longitude $75^{\circ} 36' 31''$.

Parnair.—A large village covering about six furlongs, enclosed by a strong stone wall and having a guddy. It is at present thinly inhabited and in decay. N. latitude $18^{\circ} 52' 5''$, E. longitude $75^{\circ} 28' 13''$.

Yellumb.—A small enclosed village above the ghauts in N. latitude $19^{\circ} 5' 50''$ and E. longitude $75^{\circ} 31' 51''$, contains about 300 houses and 6 shops, and is the residence of the zemindar. A market is held on Fridays, and at a durgah an oorus annually takes place.

Ningoor.—A small enclosed village containing about 800 houses and 12 shops, at which a market is held on Sundays. There is a durga on the north of the village, to which annually an oorus takes place. N. latitude $18^{\circ} 48' 22''$, E. longitude $75^{\circ} 50' 14''$.

Chausella.—A small walled village on the Bookan river, near its junction with the Manjeera and on the road from Sholapoor to Bheer. N. latitude $18^{\circ} 42' 34''$, E. longitude $75^{\circ} 44' 37''$. It covers about three square furlongs and contains 200 houses and 6 shops; a market is held on Mondays.

Nandoor.—A large village surrounded by a wall supported by towers and having a high guddy in its centre. It is situated on the route from Bheer to Nuldroog, covers about four square furlongs, and contains 300 or 400 houses and 50 shops. A bazaar is held on Sundays, and it is the residence of a Shiekdar. N. latitude $18^{\circ} 40' 14''$, E. longitude $75^{\circ} 53' 15''$.

Parah.—An enclosed village containing about 300 houses and 10 shops; 2 miles east of the village, in a tope, there is a fine pagoda dedicated to Bhawanee, to which an annual jatra takes place, and, many thousands from the surrounding countries being collected, a fair is held. N. latitude $18^{\circ} 37' 57''$, E. longitude $75^{\circ} 52' 34''$.

Pargaon.—A large and populous village on the road to Bheer, situated on the south bank of the Manjeera, containing about 400 houses and 10 shops. N. latitude $18^{\circ} 39' 52''$, E. longitude $75^{\circ} 44' 32''$.

Madulmohee.—A large village at which a market is held on Tuesdays, contains about 400 houses and 8 or 10 shops. N. latitude $19^{\circ} 9' 45''$, E. longitude $75^{\circ} 21' 21''$.

Yellum.—A large village on the right bank of the Sindphumnee in N. latitude $18^{\circ} 47' 46''$, E. longitude $75^{\circ} 52' 44''$, contains about 500 houses, including those of 40 weavers, and 22 bazars. A market is held on Wednesdays. There are two pagodas, dedicated to Monjamba.

Mannoor, the capital of a pergunna, is situated on the right bank of the Nagatholo river. N. latitude $19^{\circ} 4' 36''$, E. longitude $75^{\circ} 21' 12''$. It is surrounded by a mud wall now in ruins, and contains about 250 houses and 12 shops, also there is a small pagoda, and extensive tops of mango trees and date trees scattered along the river. It is the residence of the amildar, and a market is held on Wednesdays.

Limbah Gunaish.—A large village enclosed by a wall and towers, and surrounded by mango topes, contains about 200 houses and 8 shops, and is the residence of a desmook. South of the village is a pagoda, dedicated to Gunaish, where a festival is annually observed which lasts seven days. N. latitude $18^{\circ} 47' 51''$, E. longitude $75^{\circ} 41' 52''$.

Patodha or Patwad, the capital of a talook of the Chausella pergunna, is a large enclosed village on the right bank of the Manjeera, containing about 300 houses and 10 bazars, at which a few coarse cloths, quilts, pungams and jagry are manufactured, also a market is held on Tuesdays. N. latitude $18^{\circ} 48' 18''$, E. longitude $75^{\circ} 32' 14''$.

The following are the next most considerable villages :—

	N. Lat.	E. Long.	Remarks.
Borkhaid	$18^{\circ} 44' 38''$	$75^{\circ} 40' 28''$	Enclosed village, 150 houses and a neat guddy.
Kamkhaid	$19^{\circ} 4' 57''$	$75^{\circ} 22' 38''$	Jaghir village, 200 or 300 houses and a remarkable durga.
Cunda Pargaon	$18^{\circ} 45' 26''$	$75^{\circ} 33' 5''$	500 houses, several shops, and two celebrated pagodas dedicated to Burranmat and Kookoodah.
Malepoor	$19^{\circ} 5' 11''$	$75^{\circ} 13' 5''$	A large jaghir village, 300 or 400 houses and several bazars.
Kulsumber	$18^{\circ} 50' 45''$	$75^{\circ} 51' 38''$	} Are rather large villages and contain each 3 or 4 shops.
Manjrersoomba	$18^{\circ} 50' 6''$	$75^{\circ} 47' 12''$	
Cheratta	$18^{\circ} 57' 14''$	$75^{\circ} 42' 32''$	A jaghir village, contains 300 houses and 6 shops.
Kullagaon	$19^{\circ} 15' 29''$	$75^{\circ} 27' 38''$	A walled village, 200 houses, 4 shops and a durga.

4. *Villages and Towns.*—See the Register of Villages.

5. *Rivers, Anicuts on them, and Canals.*—The principal river is the Godavery, which forms the northern boundary of the circar. It commences from the boundary at a point on the right bank. A quarter-mile S. W. of Patrawalla, in N. latitude $19^{\circ} 24' 57''$ and E. longitude $75^{\circ} 33' 55''$, and thence flows easterly four miles and is met by a large nulla from Amba called Ambaleath river. It thence continues its easterly course four miles, and leaves the part surveyed one mile east of Punchel Eshevas pagoda. The river at this part is about a quarter-mile wide, its banks are of earth and 40 feet high, its bed sandy, and it contains about four feet of water in the dry season. A large nulla also rises S. W. of Amba and takes an easterly direction to Kullagaon and Oomraid, some distance east of which it is met by a branch which rises at Pipla station and flows by Pipla and Mullagaon but has no name.

Sinphung River.—This is a large river which traverses the centre of the circar from west to east and falls into the Godavery east of Manjullygaon and a little south of Manjeerah. Its principal or most western sources are at Pungara and Tandulwaddy, the waters from which flow north-easterly and unite $1\frac{1}{2}$ miles N. E. of Mannoor, where they are called Nagatalla, they thence flow north-easterly $5\frac{1}{4}$ miles to Dakenwaddy, where they form a small island, and take the name of Nunny

river. From Dakenwaddy the river flows south-easterly $3\frac{1}{2}$ miles to Meidsangare, and thence takes a winding south-easterly course $6\frac{1}{2}$ miles by Sauvergaon to Roysingy and Nandoly, where it unites with the branch commonly called Sinphunna. This rises at Hatola, whence it has the name of Bulpuddy, flows south-east to Chinchpoor, and being met by a nulla from Patsara winds easterly by Wuddagaon and Pimpulnair, 6 miles, where it is met by a branch called Sinphunna from the very source, which is at a large durgah above the ghaut south-east of Chincholy station, whence it flows south-easterly by Amalnair, Koopti and Wuddali. In this river the whole of the waters between Chincholy and Oombarerry are collected, and also as far west as Kotana. From the junction of the Bulpuddy and Sinphunna, half a mile south of Gomulwaddy, the Sinphunna takes a winding south-easterly course by Kolewaddy, Sirroor, and Yellum, $11\frac{1}{2}$ miles, to the junction before mentioned at Roysingy, and thence flows easterly four miles by Limbgaon to Gajypoor, three-quarters of a mile south of which it is met by a large nullah, the several sources of which are about the base of Hutkawaddy station height, and the main stream flows by Rahi, Mohor, Thuggudgaon, Orvi and Thurgaon. From the junction last mentioned the Sinphunna takes an easterly course three miles to Derroota, and is met by a large nullah called Koothonly, which rises at the north base of the hill on which is the Mahadeo pagoda belonging to Pimpulgaon, flows north to near Kolipoory, where it is met by a branch called Mothully from Kullawaddy, and thence passes by Humba and Pourdul to the Sinphunna. From the junction at Derroota the Sinphunna continues its winding easterly course, forms a large island at Gokly Pipperry, and is met at Sirsa, distant $4\frac{1}{2}$ miles, by the Dombri, the three principal sources of which are at Oombarerry and Kurranjaun. These with a number of small streams are collected and form one stream on the east of Pimpulgaon hill pagoda, which thence flows south-easterly $4\frac{1}{2}$ miles by Ningoody to Hookunda, where a large nullah joins from Nygoor hill station, and the river takes a south-easterly direction and passes by Rajoori to Nimba and Rori, five miles, where another large nullah joins from the south. The river thence continues its course six miles by Oomrad to Terrutwaddy, where it is met by the Isroopa. This is a nullah which rises at Sookuwaddy, and flows by Balsora and Rothora. The Dombri river from this junction continues its course three furlongs to the Sinphunna from Sirsa. The Sinphunna continues its winding easterly course $4\frac{1}{2}$ miles by Chincholy and Solutgaon to Ikkoor, west of which the Balutnuddee, a small nullah from Soosi-Tudud, and Mondulonohi fall in. It then continues its course five miles by Heerapoor and Pimpulgaon to Yunkerwaddy, where the river forms an island, and the Kupper Pangri nullah from Pimprie Yonnyenna and Kamkhair falls in. From the junction at Tukkerwaddy the Sinphunna continues its easterly course $1\frac{1}{2}$ miles to the junction of the Bensoor, which is one of its principal branches and rises at the village of Bensoor, near which is a small hill durgah. It takes a south-easterly course and is met by a number of small nullahs, which have their sources from three to four miles to the east and west of Bensoor, and which from their sources converge and form but one stream at Pathoda. From Pathoda the river runs north-easterly to Nagagerry, 12 miles, and veers easterly, passing between Pimpulwaddy and Betkooni, to Mandwajalla, four miles, where a nullah joins from Kundala and Belgaon. It thence continues its course three miles to Pahilla, where it is met by another nullah from the south, which rises on the east of Manjersoombah and has many branches. From Pahilla the river shapes its course northerly to Bheer, $5\frac{1}{4}$ miles, and winds thence northerly nine miles, by Nunlagaon, Lolutgaon, and Koonka to the Sinphunna.

From the junction of the Bensoor the Sinphunna continues its easterly course three miles, and is met by the Gullutta. Its principal source is in the gully east of Imampoor station, from which it flows northerly by Sivona, where it is called Tookudmoody, and flows thence to Kinda Pargoan, where a branch from the south joins, and takes the name of Gullutta, and thence flows northerly by Nagapoor to Wakenatpoor, $3\frac{1}{2}$ miles, where a nullah from the east joins, and thence pursues its course $1\frac{1}{2}$ miles to Sinphunna, which at this point leaves the part surveyed, N. latitude $19^{\circ} 5' 50''$, E. longitude $75^{\circ} 18' 10''$.

Koonka River.—This is a branch of the Sinphunna. The principal sources are

at Kusumba and Newdingwaddy, near Dyepul, flowing northerly from the source. The waters unite at Boorkhaid and thence take a south-easterly course by Heivrah to Devulla, seven miles, where the river finally leaves the part surveyed, N. latitude $18^{\circ} 56' 40''$, E. longitude $76^{\circ} 0' 30''$.

The Sinphunna is a very winding river, its banks are generally very high, its bed sand and shingle, but occasionally rocky, and its numerous branches are of the same nature. This river is well supplied with small fish, kulboose, cels, and several species of excellent dace. There is, however, but a very small quantity in the Godavery.

Manjeera.—This river skirts the southern part of the circar and forms a part of the boundary. It rises at a tree and well $13\frac{1}{2}$ miles north-west of Purnair, and thence flows southerly by Hooslum to Patodha, $7\frac{1}{2}$ miles, and then takes a south-easterly winding course, $22\frac{1}{2}$ miles, by Pargaon, Digoal, Latogaon, Langeshwar and Pimpulgaon, to a point $2\frac{1}{2}$ miles east of Chuckla Pargaon, where a small nullah, called Boorkhaid, from the north falls in, receiving on its course numerous small streams from the south and north. From the junction of the Boorkhaid it flows easterly $3\frac{1}{4}$ miles to the junction of the Gunaiz, a small river from Limbah station. It thence continues its course $3\frac{1}{4}$ miles, and is met by a nullah from Yelluin, and flows by Nandoor, $2\frac{1}{2}$ miles, east of which it divides and forms a long island, extending from Dagerwaddy to half a mile west of Pimpulgaon, whence the river continues its course to Boregaon, five miles, then runs southerly to Hattereddy, where it again assumes its easterly course for $2\frac{1}{4}$ miles, and at Bopla forms a small island and finally leaves the circar, N. latitude $18^{\circ} 39' 18''$, E. longitude $75^{\circ} 55' 16''$.

The course of the Manjeera is for the most part through a deep alluvial soil, its banks are generally very high, earth and occasionally rocky, its bed generally sandy. The stream during the dry season is very small, but large pools are formed at distances, and it is never dry. The numerous feeders are all of the same nature. This river contains a considerable quantity of small fish.

Canals.—The only work of this kind is at Bheer, where a small canal is made for irrigating the lands on the left bank of the river.

6. **Lakes, Tanks and Reservoirs.**—There are no works of this kind in the circar. A small tank at Talabwaddy, one of the sources of the Nagalalla, a branch of the Sinphunna, and a tank at Anunthgaon are perfectly insignificant, and mentioned only on account of their being perhaps the only tanks in the circar.

7. **Mountains and Hills.**—It has been mentioned in the memoir of the Purnainda circar that the northern extremity is traversed south-westerly by a ghat, or descent from a table-land, which is the continuation of that in the Nuldroog circar terminating at Alland. The Bheer circar is also traversed from east to west in its southern extremity by a similar ghat, which joins that before mentioned at Chincholy. These ghats are the periphery, and their buttresses support the high table-land on which the Tharena and Manjeera rivers take their rise, and flow eastward. The highest land of the table in the Bheer circar extends from east to west, and is composed of downs, on the highest points of which the stations Kassony, Undulgaon, Kindalah, Limbah, Oomberliney and Chincholy are situated. From this general line deep and narrow precipitous ravines extend northerly, and intersect the whole ground as far as the stations. Myjudah, Imampoor, Hutkawaddy and Chincholy, which are perhaps 50 feet lower than the former, together with the intermediate land, and which form another general line, marking the termination of the counterforts or steep fall of the ghats, from which under-features extend in small ridges and numerous ramifications far north.

At Chincholy the table terminates, and broken ridges and detached tables extend westerly to Ahmednuggur and thence to the top of the great western ghat; others extend northerly, by Sirroor to Baruswaddy, forming in fact the western boundary of the circar, where they assume an easterly direction, and extend by the stations Ambah and Pipery as far as that of Palkerli. These form the western and northern boundary of a very low table-land on which the Sinphunna takes its rise. The western portion of the Circar is much varied by detached hills and low broken ridges, but other parts are solely occupied by wavy lands and downs.

The ghats and all the detached hills and ridges are bounded by steep rugged slopes, and are composed of limestone, which is occasionally pierced by granite. The highest points may be estimated 700 feet above the country, to the north, but their height above the level of the sea is not known.

8. *Forests, Woods, Jungles, &c.*—The only jungle is about the slopes of the ridge and about the hills on the western portion. It consists of small straggling bushes with a few small stunted trees. About Heivrah station, the valley through which the Koonka river runs, also towards Darroor, it is rather higher and contains a greater number of trees. There are a few topes of mango and tamarind trees in the vicinity of villages, a few straggling palmyra trees at Ambah, a considerable quantity of date on the banks of the Nagotalah and on the nullahs between Pipla and Boorgaon, at Hullumedaddy, near Raheniohe, also a few at Pargaon and Dombri. The implements of husbandry are constructed of babool, the only durable wood that grows in this part of the country, and of which there is a considerable quantity scattered about some of the villages, as at Parah, Laloo, Kamkaid and Torla Pipery, and it is generally carefully preserved when accidentally springing up on the hedgerows.

9. *Agrarums of Brahmins, Polliams, Jagheers.*—There are many villages held in jagheer by faqueers and gosains, but perhaps there are no religious establishments of sects. For jagheer villages see the Register of Villages.

10. *Cattle and Animals.*—The cattle are of the common kind, and not very numerous. Goats, sheep and poultry are but in small quantity. A number of tattoos, or diminutive horses of a hardy kind, are bred in various parts, but the largest are by far too small for cavalry, and the greater part ill-shaped if not deformed.

A few elk are to be found at the base of the hills south of Gargay Ambah, also about the hills near Ghatowilly, 12 miles east of Bheer. The antelope are very fine and extremely numerous above the ghats, as at Parah. There is also a very small species of goat antelope, about two feet in height. Wild hog and peafowl are to be found in great quantity in all the ravines throughout the whole range, and occasionally on the plains. Game of the common kind, such as hares, partridges and quails are to be found in great plenty. There are a few florikan. Rock pigeon and blue pigeon are very numerous. There are, however, but few water-fowl, and with the exception of some wolves and jackals there are no wild beasts of any kind.

11. *Remarkable Buildings.*—There are no remarkable buildings, the principal are pagodas and durgahs, which are neither remarkable for their architecture nor size. The following are the most remarkable :—Nagatallah pagoda at Talabwaddy ; a durgah south-east of Chorikully ; a pagoda one mile east of Parah ; a pagoda at Bheer ; Palkeeah hill pagoda ; Tarwaddy hill pagoda ; a small Jain pagoda at Amba in ruins ; Mannoor hill pagoda ; a pagoda and tippeekolum at Bheer.

12. *Mines, Minerals and Manufactures.*—Very little information has been obtained upon this subject. Of mines there are none, and with regard to minerals very little is known. At Palvur, 2½ miles south-west of Bheer, red chalk (khirminjee) is to be found in the nullah. It extends about 100 yards along the banks, and the stratum is about three feet thick and remarkably pure.

The only manufactures are a few coarse longcloths, and cloths of a fine texture used as apparel, kumbliies, blankets resembling saddle padding and commonly used by the Arabs, a few suttrunjies and coarse writing-paper. These manufactures, however, are almost entirely confined to the town of Bheer.

13. *Roads, Passes and Defiles.*—The principal roads are a road from Darroor to Bheer and thence leading westward towards Ahmednuggur, and a road from Sholapoor to Bheer and thence northward to Jaulnah. These roads are mere paths leading from village to village, and about the ghat extremely rough, if not wholly impassable, for wheeled carriages. The Pahilli ghat is the best, and the only one said to be passable for wheeled carriages. For further information see the paper called Roads in the Parrainda and Bheer Circars.

14. *Soil, Productions and Mode of Husbandry.*—The soil is a black alluvial soil, but not that commonly called cotton soil. About the ghat it is much mixed with

loose stones, but where the slopes are not too steep it is arable and sufficiently productive. The higher parts generally lie waste, or are but carelessly cultivated every third or fourth year. The flat ground about the nullahs and in the vicinity of villages is highly cultivated. Above the ghats wheat is grown in great quantities, particularly upon the banks of the Manjeera. A small quantity of rice is also produced (in the rainy season), but there being no tanks it is of course a garden production, or the culture is confined to some favoured spots. Chenna and every description of dry grain are produced in all parts of the circar, and at Bheer there are several fine vineyards; also the Hubasher grapes produced at Bheer, perhaps finer and larger than those of any other part of India. This sort of grape is remarkable on account of the fineness of the fruit and having no seeds.

(Signed) J. S. DuVERNET,
Lieut., and Surveyor superintending Hyderabad Survey.

	Dry Grain cultivation.	Hills and Slopes.	Waste.	Superficial Contents.
Bheer, not including insulated villages.....	629	244 $\frac{1}{4}$	281 $\frac{3}{4}$	1155
Insulated villages of Ahmednuggur in Bheer, Sirsa, Soangaon, Arni, Sirroor, Kotewaddy, Gomalwaddy, Rocksusboan, Waddagaon and Bullawaddy	34	11	15	60
Total of Bheer Circar	663	255 $\frac{1}{4}$	296 $\frac{3}{4}$	1215
Four villages of Bheer insulated in Ahmednuggur Collectorate, viz., Bill- wadda, Tainboorny, Pargaon and Aynth- wady	7 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$	13 $\frac{1}{2}$
Grand Total of Bheer Circar.....	670 $\frac{1}{2}$	257 $\frac{3}{4}$	300 $\frac{3}{4}$	1228 $\frac{1}{2}$

Patrood Pergunnah.—Patrood, the kusbah of the pergunnah of the same name, is composed of four principal villages which together form the pettah, viz., Patrood, Chota Patrood, Joulpoor and Ellaspoor, amounting in all to about 500 houses. It is a market town and has twelve bazar shops. The pergunnah contains 97 principal villages, four of them in jagheer.

Munjilgaon is the residence of the naib, who holds his kutchery in the village. It is enclosed by a wall and stands on the left bank of the Sinphurna river. It is a market town and consists of about 500 houses and twenty bazar shops. There is a handsome mosque in the centre of the town.

Nitrood is a large walled village with a neat ghurry built of brick and mortar, has six bazar shops, and holds a very indifferent market weekly.

Loul is an enclosed village of about 500 houses and ten bazar shops; holds a market twice in the week.

Rajawaddy is a considerable village and has a tolerably strong ghurry. Purbaini contains about 300 houses. The remaining villages of this pergunnah are of ordinary size and contain nothing that merits a description.

Thalkair Pergunnah.—Thalkair, the kusbah of the pergunnah, has 90 principal villages under it, four of them being in jagheer. It is encompassed by a wall, has six bazar shops, and holds a weekly market, which is but poorly attended. The following are the most important villages of this pergunnah:—

Mungarool, a jagheer village situated on the left bank of the Sinphurna river, consists of 300 houses and six shops, and holds a market weekly.

Munjareetee is situated at the confluence of the Sinphurna and Godavery rivers. It is inhabited almost exclusively by Brahmmins. There is a Jain pagoda in the town, dedicated to Trevekerum, from which a flight of well-built stone steps descends to the

river. Here the fish, which are held sacred by the Brahmins, are daily fed with rice and flour, for which purpose an annual allowance of Rupees 300 is granted by the Nizam's Government. Not being subject to molestation of any kind, the fish exhibit a surprising degree of tameness, and crowd to the surface in vast numbers at feeding time, evincing but little apprehension of the bathers who are in the midst of them. Some of them are of very considerable size.

Kudki, Bogulwaddi, Sooltanpore, Davergaon, Bhaind, Phool, Pimpulgaon and Chincholy consist of from 80 to 100 houses each, but contain nothing remarkable.

Givaroi pergunnah.—Givaroi, the kusbah of the pergunnah, consists of 96 principal villages. It is a considerable town with a large ghurry in the centre, and situated on the highroad from Mominabad to Aurungabad. The houses being mostly tiled give it a decent and respectable appearance. An annual feast is held at a temple dedicated to Chintamunny, which continues for three days and attracts considerable numbers from the surrounding country. A naib resides and holds his kutchery in the pettah. There are several gardens in the vicinity of the town, producing large quantities of fruit and vegetables. Plantations of rose trees were formerly very extensive at this place, from which rose water was distilled and exported to Hyderabad and Bombay in large quantities. The market days are Sundays and Wednesdays.

Shagud, situated on the left bank of the Godavery, is a large village of about 800 houses and situated on the highroad from Mominabad to Aurungabad. A market is held on Wednesdays, and the bazaar consists of about thirty shops.

Rakishbone, a town on the right bank of the Godavery, contains 1,000 houses and 40 bazaar shops. It is a kusbah and the residence of a naib. There is a considerable traffic in grain between this town and the neighbouring kusbah. There is a ferry from Rakishbone to Pipulgaon on the opposite bank of the Godavery; the large oblong wooden boat is the one in use, of which two could be furnished on an emergency from this village and Pipulgaon.

Tullawudda is a large-sized village of about 700 houses and 20 bazar shops. There is a pagoda on a hill a mile S. W. of it, at which a jatra is annually held in honour of Bhowani, and is generally very numerously attended. A market is held here on Saturdays. The rest of the villages in this pergunnah are small and insignificant, and furnish no matter for description.

Of the eight pergunnahs in the Bheer circar, five named in the margin were described, and the memoir despatched to the Surveyor-General, in 1835.

Havalee, Ballaghaut,
Mannoor, Patwad,
Chuckla Amba.

Rivers, Anicuts, &c.—There are but three rivers of any magnitude in the Bheer circar, of which the Godavery is the principal and forms the greater portion of its northern boundaries. Its direction is easterly from the point at which the description of it was discontinued in the memoir sent in last year. Its course throughout is very circuitous. Before quitting the circar it receives the Leith, the Umrootha, the Sinphuna and several smaller streams which issue from the Palkeah range of hills. The bed is in general sandy, with the exception of a distance of about four miles between the villages Nandoor and Gorandy, where it is rugged and rocky. It quits the circar about a mile to the eastward of the village of Mogra. Large substantial wooden boats are used at the ferries of Rakishbone, Shagud and Budda Musla.

The Sinphuna is the next considerable river in the circar, and has already been described up to the line of longitude $75^{\circ} 48'$, from whence it continues to run easterly to Nandoor, a distance of about 26 miles, receiving the Bensoora nullah near the village of Yerandgaon. At the village of Copra, about three miles further, it is joined by the Gulluttee, and at Nandoor it meets the Koonka; from thence it pursues a north-easterly course, and after receiving several smaller streams passes Chincholy, from whence it bends to the north-westward and empties itself into the Godavery at Munjurettee. It is fordable throughout its course through the circar; the bed in general is rocky.

From longitude line 76° the Koonka runs eastward for 16 miles, receiving in its progress numerous small streams. It then turns due north and continues so up to its junction with the Sinphuna, flowing by the villages Bhavi, Koopa, Sultan-

poor, Dukerwaddi, Rajawaddi, Puldi, Loul, Khanapoor, Bramagaon, Dhoregaon and Kather Sangavi, where it quits the circar.

Lakes, Tanks, Reservoirs.—There are only a few tanks in the portion of Bheer circar surveyed this year, which are very small and insignificant.

Mountains, Hills, &c.—The principal range of hills in this circar is that on which the trigonometrical station of Myndoh is situated ; the average height is about 400 feet. The extremities of the Daroor ghaut, already described, also project into this circar. Another low range, called the Palkeah, runs from west to east and parallel to the Godavery river ; its general height is inconsiderable.

Cattle and Animals.—The usual kinds of domestic animals are tolerably abundant. Elk, deer, wild hog, hyænas, wolves and jackals are found in this circar. The larger beasts of prey are seldom seen.

Mines, Minerals, Manufactures.—No mines nor minerals in this tract. The only manufacture is that of coarse cloths and cumlies.

Roads Passes and Defiles.—See description of roads in the Bheer Circar.

Soil and Productions.—The greater portion of the soil is black, particularly in the vicinity of the Godavery river. About the hills it is a mixture of red and black, and extremely stony. This portion of the circar is in general allowed to remain waste. Wheat, jowarry, chenna, and several varieties of pulse are extensively cultivated. Vegetables are also abundant.

(Signed) H. MORLAND, Bt. Captain,
In charge, Hyderabad Survey.

GEOGRAPHICAL, &c., MEMOIR OF THE KOWLASS CIRCAR.

Situation and Boundaries.—The Kowlass Circar is included betwixt the lines of north latitude $18^{\circ} 32' 30''$ and $17^{\circ} 53' 30''$, and those of east longitude $78^{\circ} 0'$ and $77^{\circ} 52'$. It is bounded on the north by the Nandair circar, on the south by the province of Beder, on the east by Maiduck, and on the west by the Beder and Nandair circars, as detailed in Paper A.

Extent and Distribution of Surface.—It comprises an area of $1,492\frac{1}{2}$ square miles, of which $206\frac{3}{4}$ are under tanks and rice cultivation, $492\frac{1}{4}$ are under dry grain, $336\frac{1}{4}$ are hilly wastes, and $457\frac{1}{4}$ are of pasture land and plain jungles.

Superficial Characters, Mountains, Ridges, Drainage, &c., &c.—The superficies of this tract of country presents two natural divisions, discriminated in configuration and in those circumstances of their physical geography which depend upon mineral constitution.

1. The western portion is constituted by a wide tabular ridge, which, with a general direction from N. W. to S. E., extends from the great trappean deposit of the Deccan. This mass upon its westward slope beyond the boundary of the circar touches the superior aluminous plateau of Beder, which it determines to the eastward with an irregular and deeply indented façade over the general granitic surface, and in conformity with the principle that aqueous action is exerted in subordination to geological structure it guides the compliant Manjera river in a linked, reversed course, along either junctional valley, the stream flowing towards the south-east upon the Beder flank, and cleaving the circar as an irregular diagonal with a north-easterly direction upon the other.

The northern moiety of this tract bears the tabular appellation, not from its presenting a configuration of surface uniformly elevated, but from the character of its composite hill groups, whose conoid or tabulated summits and valleys in interminable systems maintain a general plane of irregular eminence.

The main crest of this portion of the ridge, whence the drainage divides towards the Beder and towards Kowlass, feeding the Manjera upon its eastern or western bends, runs capriciously beyond delineation.

In some lines the inclination is continually maintained from the base beneath the clay stone nearly to the cliffs over to the granite, and the vague *Col* wanders along the eastern verge. At other points the laced (?) pierce so deeply, and with directions so various, that it is removed nearly to the glacis above the Beder valley, and while it errs without rule between the reticulating watercourses mould the facile surface into flowing hill forms, softly inwrought ravines, and expanded valleys, the former for the most part clothed in fine grasses highly timbered on the summits, and laden in their abutments with forest groves, the latter laid out in many-coloured luxuriance in pulses, tobacco, madder, hemp, the millets, oils and (?) corns.

The southern division of the ridge presents a bold and definite eastward façade less profoundly indented. A distinct crest runs along its summit, the drainage of its undulated western slope falling towards Beder, while its short valley streams alone seek the Kowlass reach of the Manjera. Beneath it at some points extensive tracts of degraded greenstone tablets, and the resulting soils spread widely; at others the rude granite runs nearly up to the cliffs and uniformly throughout the great valley of junction. The band of contact of the two formations is prone to rudeness of surface and to the harshest jungle covering.

2. The eastern portion of the circar is an angle of the great granitic expanse of the Peninsula. Its surface consists of arenaceous plains, sterile and waste save where the numerous feeders of the Manjera diffuse over them their tributes of virgin alluvia borne from the trap entablature, or where their mode of lapse to the stream from either side has permitted the conversion of the drainage to the purposes of irrigation.

Two principal ridges, of which the western is crested by Narsapoor peak, while the eastern depends behind Gundaree to the second main inclination of the

stream, run through this region with a direction nearly from north to south. Groups of serried hills in irregular and often fantastic decadence, frequently capped by greenstone near the trap frontier, and occasionally traversed by extensive beds of arid quartz rock, everywhere intervene, merging their lines in the main ridges, which attain important altitude, with rugged contours and straitened valleys, as they recede from the valley of separation.

And although the channel of the main river is for the most part kept at too low a level to permit of the economical diversion of its waters, the gentle lapse of the tributaries through easy valleys of erosion permits their arrest into frequent series of reservoirs, and covers the land with expanses of rice cultivation.

Territorial Subdivisions.—The circar consists of six pergunnahs, viz.:—Havelly, Gandaree, Tucul, Sathvaly, Ootaloor, and Narainkhaid.

Havelly.—The Havelly pergunnah is subdivided into eight talooks, besides a portion which includes the capital of the circar and a domain immediately subject.

Talooks.—The talooks are Bichkoonda, Mudnoor, Barkoor, Kutgaon, Kodacher, Karedkel, Anagoan and Banswaddy, and these are assigned in charge to a like number of officers termed Desmooks, while the town and fort of Kowlass with its dependent tract are ruled, under a peculiar tenure, by an hereditary Zemindar. The circar in all numbers 258 villages, of which 61 are dependent, while few, saving the kusbahs, which confer their names on the talooks, and the capital itself, merit notice.

Fort and town of Kowlass.—Kowlass is situated in latitude $18^{\circ} 19' 35''$ and longitude $77^{\circ} 44' 37''$, and has attached to it sixteen principal and seven secondary villages.

An irregular oblong fort of solid masonry and bold round towers with an interfortalice guarded by strait portals and storied parapets occupies a hill spur which is swept by a full and torrent rivulet where it emerges from the trappean highlands to find the Manjera in the plains. Upon the opposite bank of the stream beneath the serried granitic hills, the petta extends, washed by two tanks upon its northern wall, an ordinary and decadent village, whose note was considerable both as a provincial capital of the Warungole power, and as a later dependency of the Beder kingdom. The stream in the season of rains was a living moat to the northern flank of the hill fort, but at the same time severed it from the town upon the opposite bank. To the west the grey many-towered walls commanded a deep natural slope before them, but the summit of the counterscarp of the ravine was at least upon a level with their base. Against the southern side, before which the hill top spreads a plain summit, lies a small shallow tank, but it becomes dry in the heats, while on the north-east, where the hill slope becomes again precipitous, the walls are not advanced to the verge, but have betwixt their bases and the fall a dry ditch of considerable depth.

The site of Kowlass may never have been regarded as of remarkable strength, it having in fact been selected to serve the temporary exigency of Jumsheed Shah of Golconda, who when forced to retire before King Kasim Berud in his invasion of the Beder State fortified it as a depôt and completed the works about the year 1545.

A Rajpoot Zemindar, now nearly despoiled of the ancient and extensive heritages of his family, still holds the town and fort, and the S. E. bastion of the latter furnishes a trigonometrical point.

Bichkoonda.—The Bichkoonda talook includes 39 principal and 17 dependant villages. Bichkoonda is a place of respectable size upon the highroad to Hingolee, and stands about half a mile N. E. of the trigonometrical point in latitude $18^{\circ} 23' 40''$ and longitude $77^{\circ} 44' 43''$. It is surrounded by a mud wall, and large tanks upon its eastern and western flanks copiously irrigate an extensive sheet of rice ground. A small Buddhist temple raised in a peculiar style of architecture stands on the outside of the village by the water-side.

Chota Kodupgul lies about four miles to the S. E. of Bichkoonda upon the same line of road. It is a considerable place with a large tank and proportional extent of wet cultivation.

Pittum is situated about three miles S. W. of Chota Kodupgul, and is also on the Hingolee route. It is a respectable market village, has an extensive tank and tract of rice ground. A small detached quartz hill adjoining a small tank to the eastward of the village furnishes a trigonometrical point.

Thandeole is distinguished by its small hill ghurry and large tank; it stands a mile to the eastward of the Manjera not far from Banswaddy.

Mudnoor.—The Mudnoor talook consists of fourteen principal villages. Mudnoor, the kusba, is the next respectable halting-place after Bichkoonda upon the Hingolee route in latitude $18^{\circ} 30' 7''$ and longitude $77^{\circ} 40'$. It is a neat small town on the northern boundary of the circar, and has a stone-built citadel, the N. W. angle of which is a trigonometrical point. Four tanks of different extent appertain to it, and water a small fertile tract of rice cultivation.

Beerkoor.—The talook of Beerkoor has eleven principal and eight subordinate villages. Beerkoor is a populous village in latitude $18^{\circ} 27' 54''$ and longitude $70^{\circ} 50' 26''$; a building on the N.E. of its ghurry is a trigonometrical point. Three extensive tanks near it give luxuriance to a large tract of rice ground and to some fields of sugarcane, and the Manjera river runs about a mile to the westward.

Budda Kodupgul is the only other respectable village in the talook; it is situated upon the Hingolee road, and its N. W. bastion is a trigonometrical point.

Kutgaon.—The talook of Kutgaon consists of ten principal villages. Its kusba is a place of no note, and is situated in latitude $18^{\circ} 19' 45''$ and longitude $77^{\circ} 46' 30''$.

Suttanpett is a considerable market town where every species of produce is displayed in a weekly fair.

Kodacher [and Karedkel].—The talook of Kodacher includes eight principal villages, and the talook of Karedkel sixteen principal and three subordinate. Their respective kusbas stand upon the banks of unimportant feeders of the Manjera, and the cultivation of the country around is nearly restricted to the dry grains. Kodacher stands in latitude $18^{\circ} 26' 40''$ and longitude $77^{\circ} 40'$, Karedkel in latitude $18^{\circ} 29' 10''$ and longitude $77^{\circ} 32' 15''$; they include no villages which will bear remark.

Anagaon.—The talook of Anagaon consists of thirty-two principal and four secondary villages. The kusba is in latitude $18^{\circ} 20'$ and longitude $77^{\circ} 29'$. It is a place of respectable extent, walled round, and situated on the south-western boundary of the circar upon the trap table cultivated with dry grain. A weekly fair is held here, and this village alone in the talook offers a mart for the country merchandize.

Banswaddy.—The talook of Banswaddy comprises fifty-three principal and twenty dependent villages. Banswaddy, the kusba, stands in latitude $18^{\circ} 23' 27''$ and longitude $77^{\circ} 54' 43''$, and is a considerable trading town with a strong central tower. It is placed in the midst of a large sheet of rice cultivation watered by adjacent tanks.

The neighbouring village of Sangumnatpett is an active mart for rice, and is subordinate to Banswaddy.

Doorky and its subordinate Dasayepett have four considerable tanks appertaining to them; a small body of horse is quartered here, and the S. W. angle of Dasayepett furnishes a trigonometrical point.

Singtum is a respectable village situated in the hills about four miles south of the station of Nursapoor peak, and is remarkable for its cloth trade and manufacture.

Jucul Pergunna.—Jucul pergunna comprises thirty-eight principal villages. Jucul, the kusba, is a substantial and thriving town; the angular bastions of its wall and gateways remain; a strong stone-built ghurry stands in the centre, and is the residence of a nab. It is situated in latitude $18^{\circ} 21' 46''$ and longitude $77^{\circ} 38' 46''$, and a ruinous eedga about a mile to the west of the town is used as a secondary point. Jucul has but one small tank to the south, and the cultivation around it is principally of dry grain. Of the remaining villages in this pergunna Kunkaty and Tadkul alone bear notice. They are situated within the hills to the south of Kowlass, and having weekly marts they are centres of the poor country commerce and maintain a decent appearance.

Kunkaty lies about a mile and a half to the eastward of the trigonometrical station, and is surrounded by dry-grain fields.

Tudkul has three considerable tanks to the north, which irrigate a large sheet of rice ground.

Ootaloor Pergunna.—Ootaloor pergunna consists of thirty principal and five dependent villages. Ootaloor, the kusba, stands in latitude $18^{\circ} 4' 30''$ and longitude $77^{\circ} 59'$. It is a wretched and thinly-peopled village. The hamlets belonging to it are small and poor, almost without exception situated on the highroad to Hingolee. It is surrounded by a mud wall and furnished with five good tanks, which with the assistance of a large wet nulla supplies with water a wide expanse of rice cultivation.

Sunkarampett, upon the same route, is a decent and well-built little town surrounded by a stone wall defended by bastions at the angles and gateways. It is the residence of the Ameen of the Ootaloor pergunna, and all business is transacted here instead of at the kusba. It has two ordinary tanks, and lies half a mile S. W. of Thrillapoorum station.

Gandaree Pergunna.—Gandaree pergunna numbers thirty-four principal and nine subordinate villages. Gandaree, the kusba and seat of business of the pergunna, lies in latitude $18^{\circ} 23' 37''$ and longitude $78^{\circ} 9' 27''$, and the S. W. angle of its citadel is a trigonometrical point. The extent of the town is still considerable, but in early times it enjoyed much importance. The walls are falling rapidly to decay, but the population is considerable, and a market is held every Thursday; a neat but neglected pagoda, consecrated to the goddess Lutchmy, stands at the south-eastern extremity of the village, a large nulla runs close to the eastward of the town, and four small tanks adjoin it to the west.

At Budda and Chota Potungul, Rampoor, Timmasonpully, Somawarum, Goodjal, Woodapully, Yengapooree and Peit Sangirem iron ore is extensively smelted.

Sathvaly Pergunna.—Sathvaly pergunna contains forty-one principal villages and forty-seven subordinates, of which five only are of any consequence, viz., Yellareddypett, Kulliancepett, Bolarum, Peddareddypett and Bhavaneepett, each consisting of from 800 to 1,000 houses fairly inhabited. Sathvaly, the kusba, stands in latitude $18^{\circ} 10' 30''$ and longitude $78^{\circ} 2'$, and two miles east of the Manjera river. It has a large tank adjoining it upon the north, but is almost deserted, and the kutcherry is in consequence held at Yellareddypett.

Kulliancepett lies two miles north of Yellareddypett, on the left bank of a large stream S. of Lingala station. It has a small citadel and its streets intersect each other regularly at right angles; two spacious tanks lie to the south of the petta, below which a large tract of rice land is cultivated.

Bolarum and Peddareddypett are remarkable for their large tanks and very extensive culture of wet grain; and Bhavaneepett, which is situated two miles south-west of Sungium station, on the left bank of a nulla (the same which descends to Kulliancepett), is a regularly built little town. It has a small citadel and enjoys a considerable measure of country trade; coarse paper, brown sugar and jaggery, kumbles and coarse cotton cloths are manufactured in it.

Narainkhaid Pergunna.—Narainkhaid pergunna contains ninety-seven principal and seven dependent villages. Narainkhaid, the kusba, stands in latitude $18^{\circ} 2' 30''$ and longitude $77^{\circ} 49'$, at the eastern base of Daumergidda table land, and has two dependent hamlets, viz., Ooperkoondapoorum and Mungapett. The latter of these is superior in extent and population to Narainkhaid. It stands about half a mile east of it, and is the seat of the pergunna kutcherry. There is here a very considerable trade in rice, the neighbouring high land being entirely supplied with this article from the market of this village. With the exception of Kullair the villages are small and of wretched appearance.

Kullair is situated on the highroad to Hingolee; it has a ghurry, is the residence of several opulent merchants, and a market is held in it once a week.

Register of Villages.—The Register of the Villages of the Circar, with relative positions and distances, is afforded by paper B.

6. **Roads.**—The two main lines of road towards Hingolee and towards Jaulna which run through the circar are detailed in paper C.

7. **Minerals.**—The rocks chiefly exhibited by the trappean ridge which constitutes the western portion of the circar are greenstone of hornblende and felspar,

either solid or cavernous and of various texture, basalt, clinkstone, and wachi which approaches to claystone. All these graduate into each other and present themselves throughout in uncertain ravelled bands; the greenstone surface is for the most part bouldery, the basaltic is much strewn with nodules, while the two remaining and less extended members of the family usually disintegrate thoroughly *in situ*. Throughout the whole, patches of limestone almost wholly converted to chert appear without rule. At some points a slab not exceeding a few yards in either direction is found isolated in the greenstone, and usually dark-hued. Above Jucul a tract of considerable extent upon the extreme verge of the trap exhibits a series of rare and beautifully combined varieties of colour, the rock being now a perfect chert, now a granular limestone.

At almost every point where, from the condition of a frontier so peculiarly subject to degradation, their persistence might be anticipated, local conglomerates occur along the junctional line. They appear in general in bands of but a few yards wide straggling over the line of contact along the bases of the trap façade, and are composed of the materials of the two rocks apparently altered both by mechanical violence and by the agency of heat. The diversities of character which they assume are endless, but their combinations are characteristic.

(1) consists of a base of deep red compact felspar completely interfused with pebbles of clear crystal quartz from a microscopic size to the bulk of a bean, small angular fragments of greenstone now unaltered and often resembling trap tuff mingle in them, and here and there appear patches of red jasper of high lustre and conchoidal fracture, the compound being of very compact texture and extremely hard.

(2) is formed of a base of white felspar with worn quartz pebbles imbedded, but not so abundantly as in the base of the first variety. Trap fragments occur, and a white or pale yellow jasper is often formed, while to the whole are superadded attrite pebbles of the red quartzose material which forms the bulk of No. 1.

(3) consists of granitic matter not much altered, mixed with fragments of trap apparently in different stages of approximation to the state of the red base before mentioned. The rock is reticulated by jaspery veins of varying colours from deep red to pure white, according to the prevalence of the granitic or trap materials.

(4) consists of intermixed pebbles of white and blue quartz with small patches of granitic and trap material all inwound in jaspery circlets formed from the various substances. Small stripes of cornelian, eye like agates, and quartz splinters of every variety of hue form a mass of extreme compactness and of unique aspect.

The granite of the eastern portion of the cirar is in general of white felspar, and quartz with mica and hornblende in small proportions, and its texture though various presents no striking diversities.

When arranged in beds of considerable depth these break up into prisms or cuboids which present rugged surfaces abounding in cheese-wrings, rocking stones, and other fantastic groups; when the beds assume laminar dimensions they disintegrate in informal fragments; and smooth hill domes appear, though infrequently, in this particular angle. The rocks all weather and bear lichens towards the S. E. quarter, and tracts of crystalline quartz rocks of considerable breadth and several miles in length rise in flowing lines over the granite.

(Signed) S. C. MACPHERSON,

In charge Hyderabad Survey.

PANGULL CIRCAR.

Situation and Boundary.—The Circar is bounded on the north and east by the Ghunnapoor Circar, on the south and S. W. by the river Kistna which separates it from Raichoor and Kurnool, and on the west by the Moojafurnuggur or Mulkhaid Circar.

Area.—The superficial area of this Circar in square miles is estimated at 1,255·5, of which the particulars of distribution are exhibited in the following table :—

Pergunnas.	Circar.	Wet Cultivation.	Dry Cultivation.	Hills.	Waste and Slopes.	Total.
Pangull	Pangull	172·0	323·5	322·25	437·75	1,255·5
Jutpoal						
Gopalpett						
Nagur Kundanoal						
Khottacotta						
Soogoor						

Mountains and Hills.—The hills may be considered as commencing from Jutpoal eastward. They raise themselves into mountains where they connect with the river at the villages Mulleshwarrum and Pedda Sungum. The principal apices are the Yenkulloor, Mobligoondoo, Margoontty and Doorgumgutt stations.

There is a mass of hills crowded together between Pangull and Khottacotta, divided into several irregular ridges and extending generally east and west, composed of huge rocks with earth and covered with jungle; on the south extremity of these hills is the Pangull droog, the N. E. angle of which is determined by the trigonometrical survey. Beside these there are several detached hills scattered all over the Circar; the most remarkable of them is Yaitumconda. Its aspect is of a conical shape, and its summit is covered with a mass of rocks; on its top is situated a small pagoda dedicated to Ramaswamy, which is held in great veneration by the Hindoos.

Pungadeegutt from its appearance is a detached mass of rocks, and is the most conspicuous hill at the foot of the ghauts; both this and Yaitumcondah are determined as secondary points.

Yellaconda is a conspicuous hill close east of the Kurnool road, whose ascent is difficult over a solid rock; it is one of the primary points. The others are of less note.

There is a small table-hill about four miles east of Yellaconda, whose southern sides are steep and covered with wood. Those seen about Letchnapoor are rather conspicuous swells covered with wood. Those about Kopanoor, Kolloor, Jyoorpully and Soleepoor are tables covered with wood.

Droogs and Forts.—Pangull, situated on the military road to Gooty, is a hill-fort strongly built; but as access was denied to it the description is confined to its outward appearance and from reports. It is much stronger than that of Ghunnapoor, and in better order. The line of fortification is seen to encompass the whole hill, and defended by several towers or bastions on the summit, on every one of which are seen a few pieces of ordnance. It has a killadar and a garrison.

Byannagootta, or Old Pangull, is a low flat table of a triangular form, on whose summit was formerly situated a fort, but from the scarcity of water it has been abandoned and is now in ruins.

Pentilly has a neat fort consisting of eighteen bastions built of slate stone and mortar, and has a ditch all round.

Rivers and Nullas.—The principal river is the Kistna, passing to the right of the villages Moonagumandinna, Penchuculpad, Veerladinna, Kcoordapad, Tippiahpully, Viapurlah, Bussavanpoor (Pangtoor on the right), Pedda and Chinna, Murroor, Yellatoor, Soleepoor, Kolloor, Chillamullapad, Munchalacutta,

Yencul to Mulleshwarrum, then rushing between the high hills by Somesalla, Siddashwarrum, Amragherry, Margootty, Bolaram and Doorgum to longitude $78^{\circ} 38'$. The banks are in many places very steep, about 4 to $5\frac{1}{2}$ furlongs broad, bed sandy and rocky, particularly where it passes between the hills.

The Jutpoal nulla takes its rise among the hills near Ballygootah, Yeddoorlacondah and Sungoyapully. In its course it is fed by a number of small tributary streams. At Nagullapully it becomes remarkable, and passes by the villages Chikkapully, Tairlapully, Toomkoontah, Kondoor and Gopalpoorum.

Another of the same magnitude takes its rise about Goodpully, Yennachirla, Bhavapoor, Khanapoor, passes one and a half miles west of Kundoorgutt hill, and ranges by the villages Yennamanabutla, Narsingroopully, Ramapoor, Chunumpully, and close south of Pentelly unites with the former one and a quarter miles N. of Jutpoal; passing between the petta and the fort, the united stream joins the Kistna opposite Moorseyconda.

Another, and the easternmost nulla, of a like magnitude takes its rise from the ghauts on the east of Sundoorbutla, Peddapully, Umbutpully. It enters this Circar close N. of Goorymuddagooda, a ruined village, thence winds along a wild tract by the east foot of Pungadygutt hill to Chintapully and Moglutt, and empties itself in the Kistna river two miles S. of the latter village. It has a rocky bed, steep banks, and does not long retain water.

There are several taking their rise from the Pangull hills and descending in a southerly direction supply almost every large tank in their course.

The lesser Hookachetty-vaug, which takes its rise in the Chunpoora district, is so deep and rapid during the rains as to intercept the communication for several days together. It receives several small nullas in its course and falls into the greater Hookachetty-vaug opposite Gopunnappett, whence it forms the boundary, and empties itself into the Kistna at the island Goorumgudda.

Tanks.—The largest tank in this Circar is at Streerungapoor and is compactly built. There is always a supply of water throughout the year. At the following places there are large tanks, which contain usually water for six or eight months, and in very favourable seasons throughout the year, namely, Yellatoor, Tatpomla, Sungareddypett, Rungapoor, Yenkatapoor, Uprella, Bikkium, Goomadium, Lingawattum, Jaffiapully, Mahsummadrum, Toomkoonta, Pentilly, Narrainpoor, Kondoor and Sookonpully; all these tanks supply large sheets of paddy.

Roads.—There are two military roads from Hyderabad; both are one and the same. When they enter this Circar at Chittialloor it passes by Wonpurty and through the hills to Pangull, where they separate to Kurnool and Cuddapah. The one to Kurnool passes by the villages Bundapully, Jamapoor, Kulvaral, Yellacondah and along the west foot of Yellacondah hills by Mecapoor and Bussavapoor on the left bank, and Pangtoor on the right bank of the Kistna. The other to Cuddapah by the villages of Keytapully, Vullavapoor, Toomkoonta, Lingawarrum, Gopalpoorum and Munchullaetta on the left, and Moonycondah on the right bank of the Kistna. Both these in the dry season are generally good and cause no impediment; but in the monsoon, on account of the black loam, some difficulty will be experienced by wheel carriages.

There are also two trading roads, one from Pangtoor through Goomadum, Jwarpully, Yenkatapoor, Ummadapakla, Khottacotta and Kunnametta, where it quits this Circar, to Kundoor and Hyderabad. This road is generally frequented by laden bullocks for the convenience of water and forage. The other from Moonycondah Ghaut by Rampoor, Santabutla, Kullavakool, Satapoor, Bachwarrum, Kothapully, Anduralla, Chundrakull, Shundrabutla, Dateh, Ittykial, Koondanool, Yendabutla and Yadhareddypully to Yeljal and Hyderabad. Others, from one kusha to another and from village to village, are generally frequented by Buckalls or Banians, who generally move about from one market to another.

Chief Towns and Villages.—Pangull, the capital of the Circar, is situated on the highroad to Kurnool. It is a droog fort (*vide* Droogs and Forts). The petta is situated to the north of the hills, with a mud wall round it in a ruinous state. It is chiefly inhabited by weavers and Hindoos. It is the residence of an amildar.

Wonpurty is a large and flourishing village in the Soogoor pergunna. It is the residence of a Rancee or Deysmooknee of the Soogoor and Khottacotta pergunnas. Several opulent merchants reside here, who carry on an extensive trade with the surrounding capitals. The soil in its vicinity is rich and fertile, and well irrigated by numerous tanks in the neighbourhood. There is a small ghurry or mud fort built round the Rancee's residence, which is always guarded by a large body of peons. A weekly market is held on Mondays. The highroad to Kurnool passes through this place from Hyderabad.

Soogoor, the kusba of the pergunna, is situated twelve miles S. W. of Pangull and nine and a half miles W. of Pangtoor. It is three miles N. of the Kistna river. It is in a wretched state; the mud wall which encompasses the village is in ruins. A granite pagoda with a remarkable granary are the only remaining tokens of its having been formerly a place of some importance. The soil about it is very fertile, and an extensive sheet of paddy is cultivated by the aid of two large tanks in the neighbourhood. There are nullas passing on each side of the village covered with a dense date jungle which yields a large supply of toddy.

Gopalpett is a large town surrounded by a mud wall, and in the centre stands the ghurry, round the Zemindar's house. It is defended by bastions at each of the angles. The streets are regular and clean and the houses are mostly terraced. The Deysmook of the Pangull Circar resides here. It is five miles N. E. of Wonpurty and ten miles N. of Pangull.

Khottacotta is a large village situated on the trading road to Kurnool, and is nine miles west of Wonpurty and seventeen N. of Soogoor. It is so thickly encompassed with tamarind trees that the village is entirely hid. The whole of the houses are terraced, and the fort, which is to the west, is entirely ruined. There is a fine encamping ground to the north and east of the village. It is the kusba of the pergunna.

Jutpoal, the kusba of the pergunna, is divided by a small river of the same name, having the petta on its north and the fort on its south bank. The former is somewhat regular, and chiefly peopled with Banias. It holds a market on Mondays. The fort is well built with granite and lime, but is now unoccupied, neglected and going to decay. It has a lesser town to the west adjoining it, where the koonbies (or cultivators) and Banias reside.

Streerungapoor is a middling-sized village about six and a half miles S. W. of Pangull and five and a half N. E. of Soogoor. It has a large tank near it which contains water all the year. It is the largest in the pergunna and very compactly built. The Zemindar has a bungalow in the centre, erected on an eminence, to which he resorts during the festival days of the pagoda upon a rock east of the town, which takes place annually.

Munchalcutta was formerly famous for its grand extensive Hindoo pagoda, situated on the bank of the Kistna, now in ruin and decay. The great road to Cuddapah touches this and has an excellent ferry.

China Murroor is a pretty large village and the residence of a Rancee.

Kundanool, though kusba of a pergunna, is only a middle-sized village. Pedda Murroor, Yellatoor, Kolloor, Pentilly, Kollapoor, Toomkoontah, Kullavakool, Nursiapully, Yennamunnabutta and Jafiapully, all large villages and have ghurries. Yellatoor, Sungareddypett, Tatpomla, Rungapoor, Yenkatapoor, Uprella, Bikkium, and Goomadam are villages consisting of about 200 houses each; these have all large tanks containing a supply of water for eight months, and in favourable seasons for the year. Their bunds are strongly faced with stone and pukka floodgates; they water extensive sheets of paddy.

The other villages are of less note and thinly inhabited, and need no particular description.

Weekly markets are held at Pangull, Wonpurty, Gopalpett, Yenkatapoor, Kulvaralla, Ramkistnapoor, Khottacotta, Pentilly, Kollapoor and Toomkoontah. Toddy is plentiful, of which the people drink to excess.

Produce and Manufactures.—The chief produce of this Circar is paddy and dry grains of all kinds, also a little cotton.

The manufactures consist of coarse cloths, cumblies, a small quantity of salt and saltpetre, also iron (the ore being in abundance about the hills close to Mulesh-warrum and Chintapully). Diamonds are said to be found near the village of Morgootty, in the Kurnool country, opposite to Ammaragherry.

GHUNNAPOORA CIRCAR.

Situation.—This Circar is divided into two large portions extending N. W. and S. E. It is separated almost centrally by the common meeting of the Davircondah and Pangull Circars.

Boundaries.—The N. W. portion is bounded on the N. by parts of Davircondah and Koilcondah Circars, on the S. by the Pangull Circar, on the E. by the Davircondah, and on the W. by the Moozafurnuggur or Moolkhaid Circar.

The S.E. portion is bounded on the N. by the Davircondah Circar, on the S. and E. by the river Kistna, which divides it from Kurnool and Palnaud, and on the W. by the Pangull Circar.

Area.—The total area of this Circar is estimated at 2,007·75 square miles ; the particulars of distribution are exhibited in the following table :—

Pergunnas.	Circar.	Wet Cultiva- tion.	Dry Cultiva- tion.	Hills.	Waste and Slopes.	Total.
Ghunnapoora	Ghunnapoora.	183·7	242·8	383·3	1,197·95	2,007·75
Amrabad						
Godbul						
Kundoor						
Bandapilly						
Yennamungundla						
Tandcondah						
Avanjah						
Koadgull						

Mountains and Hills.—The S. E. portion of this Circar is mountainous, called by the natives Nullamulla. The north face, being the ghauts, runs in a N. E. 52 and S. W. 232 direction, forming a strong natural barrier to the inhabited country consisting of the Amrabad district. A line of fortification is said to have enclosed it throughout its whole extent, which was built in the reign of Pratta Buddradoo, who was then the sovereign of this part. Some of the ruins are observable even to this day, particularly at the passes. The most conspicuous point that crowns the ghauts is Moonanoor station, 1,494 feet above the level of the sea.

There is a mass of high hills in the N. W. portion between Gopalpett and Ghunnapoora, divided into irregular ridges composed of masses of loose stones, with their summits covered with jungle. The boundary between this and the Pangull Circar passes across these hills. There are also several irregular high ridges scattered almost all over this portion.

A high ridge extends from west to east with a few detached hills about Taudcondah.

There are also a few detached hills in the S. E. portions, but none of particular note.

Table Lands.—The country above the ghauts is intersected by mountains rising one above another, their summits forming table lands with beautiful villages at their bases and to all appearance very fertile ; at present with the exception of the Amrabad valley the others are buried in forest and much neglected.

The Amrabad station is 2,548 feet above the level of the sea. It forms an arm of the parent ghaut, running directly east twenty miles which may be taken as its greatest length and from one to seven miles in breadth, having four villages situated towards the eastern side, two mouzas populated and two mouzas now in ruins.

The next and most remarkable one is the Kolem station, which is computed to be 2,873 feet above the level of the sea. This is a similar branch, and is in every respect to be considered as the highest table ridge in the whole of this mountainous tract. Its greatest length may be about forty miles in a direct line east and west,

twenty-four miles of which from the eastern extremity was only surveyed, and from two to five miles in breadth. There are several mouza villages scattered over it, all of which are ruined and have hardly any cultivation. It only affords a scanty supply of dry grain for the subsistence of some hill people who thinly inhabit them.

The northern faces of all these table mountains are perfectly steep; they have almost all a precipitous wall, particularly at the ghauts, which may be from 250 to 300 feet high, close from the summits formed of a soft earthy substance foliated, and granite with a deep red tinge answering as an outward coat. The southern falls have none of the kind, nor are they so steep. The branches of the Kolem mountains break off into ridges running south to the river and forming deep valleys with gentle descents, till to three-quarters of a mile near it, where they become very steep. The walls already mentioned run along the foot of these hills, and are found in some places to form the banks of the Kistna. The mountains on the southern side of the Kistna resemble in every particular the northern face of the ghauts already described. Their surface is undulating and excessively stony, chiefly of very red soil; and their southern declivities approaching the river into large slabs of slate stone.

Of the hills below the ghauts the principal is the Patchgutt (at the S. W. angle of the S. E. portion), and a primary point of the great trigonometrical survey. It is 2,040 feet above the level of the sea, and is a detached hill, steep and woody. A ridge of lesser magnitude is close east of it. Those linking the ghauts and jutting out into brows are high.

Forests.—The whole of the mountains are thickly covered with forest consisting of Yapa, Teak and Neemulley, which are used as beams for buildings; the Muddey Murrey and Neemulley trees, which are used for making coarse bandies. The bamboo forest is plentiful; they are applied to all useful purposes. It is overgrown with the hill grass, which is an essential forage for cattle. The Kurryapak trees are quite common. Many parts below the ghauts the jungle is low and thick, generally used for fuel.

Ghauts or Passes.—The principal are the Tullapulla, Coorva, Domerlagoondey, Chintagoodium; they have all gradual ascents, very stony and of no great length. Next are Nundulla, Coorva, Pudra Ghaut to Siddapoor, and the Ghunnapoor Ghaut. One to Pudra, another to Chitty Coonta and Letchmapoor, both directed to Amrabad; these are steep and difficult but admit of laden bullocks. There are four other passes, which can only be frequented by foot travellers.

Droogs or Hill Forts.—Ghunnapoor, lying in latitude $16^{\circ} 33' 51''$, longitude $78^{\circ} 6' 57''$, is the only droog or hill fort in this Circar of any apparent strength. It consists of a line of fortification encircling the whole hill, which is defended by bastions at almost equal distances from each other. The works are composed of stone and mortar strongly cemented together, but are now fast decaying. A remarkable bastion stands on the summit of the hill, called the Delhi Boorj, over which is a twelve-pounder. This is one of the secondary points of the great trigonometrical survey. Several pieces of ordnance are placed on the hill, a killadar and a few men are stationed in it. The petta lies at the N. W. side at the foot of the hills. It is irregularly scattered and does not appear to be well populated. The high road to Kurnool passes through it.

Rivers.—The Kistna river (forming the south and east boundary of this Circar and the limit of the Nizam's dominions) runs between high mountains, precipitating with great velocity where the hills contract. The banks are high, flanked by abrupt broken walls of precipice. Its bed is both sandy and rocky, has a constant supply of water, fordable in parts and from 30 to 50 feet deep in others. It receives in its course of $41\frac{1}{2}$ miles several large nullas and streams; it is from three to four furlongs broad where the Dindec unites. In the rainy season it takes up a space of five furlongs, washing the foot of the hills, and flows with great rapidity. Alligators and fishes are plentiful. The whole course which it pursues has a gloomy and awful aspect.

The Dindec river, forming the northern boundary common to the Davircondah Circar, has been already described in the memoir of the latter district.

A large nulla below the ghauts takes its rise at the foot of the mountains south of Billakull, fills the Roopulcherroo tank, when it pursues a north and N. E. direction in a parallel with the mountains, passing close by Billakull, Banall, Sontapully, Veeraishwarrum, Letchmapoor, Bollygullpully, Naddimpully, Bramunpully, Chundapoor, Jynool, and unites with the Dindee $3\frac{1}{2}$ miles N. E. of Singawarrum. Its banks in many parts are steep and rugged. It passes over a wild tract for about 29 miles to the above river. It is nearly 100 feet broad and has a sandy bed. It is capable of irrigating the lands in its course, but the ruinous state in which the villages are, and the present population being so scanty, it is much neglected. There are still a few temporary dams thrown across it. It is dry in the hot season.

Manumbudda-vaug, a large nulla, receives its birth at the Moonanoor hills, and proceeds through the rich valley of Amrabad in an almost east direction for twenty miles, passing close to Moonanoor, Amrabad and Letchmapoor, takes a sudden southerly turn through a wild tract for $12\frac{1}{2}$ miles, joins the Nootoo-vaug, where it assumes the name of Munda-vaug, and empties itself into the Kistnah. This nulla has rather high banks and is useful to the inhabitants in its course east, after which the banks become rugged and precipitous and of no service whatever, till its junction with the Kistna, where it is about 150 feet broad.

The Nootoo-vaug has its source eight miles west of Kolem station and proceeds in an easterly direction for thirty-one miles through a deep broad valley, passing by Kolem and Bandswanchilka, and joins the Manumbudda. Its banks are variably low and steep; the bed chiefly rocky. It has a constant supply of water, and is thickly lined with bamboo jungle for its whole length. Paddy is raised at Bundewanchilka by means of a dam.

There are three other inferior nullas which take their rise at Ippullapully and Oodmealla and proceeding directly south joins the Kistna.

Roads.—The highroad from Hyderabad enters the Circar immediately south of the village Mootareddypully to Kowrummapett, whence it branches into two—one on the right to Bellary, and the other to Kurnool on the villages of Bandapully, Alloor, Kathoor, Mulgherra, Ghunnapoora, Meenapett, Soleepett, Chinna, Mundadee, Chittcalla, to Wonpurty and Pangull, from whence it has been described in the Pangull Circar. The road to Bellary passes from Korummapett by Uppanapully, Yenconda, Palmoor, Oblipully, Ippullapully, where it again branches on the left to Gooty, and on the right continues by Sakkerrapoo, Letchumpully, Nursapully, Deyvurkudra, where it crosses the great Hookachitty-vaug and quits the Circar. The road to Gooty from Ippullapully passes on the villages Moostapetta, Kunuddypully (crossing the lesser Hookachitty-vaug) to Shakapoor, Udakla, Balloodepully, Kunnymettah to Khottacotta, whence it has been described in the Pangull Circar. All these roads are traversed by wheel carriages, and do not offer any impediment except in the heavy rains, when the country becomes miry and boggy.

The whole of these portions are intersected by roads. Those considered as trading roads, and frequented for their directness, are all of them difficult and harassing for men and cattle, owing to the rugged inequalities of their surface, being formed of table hills of various heights and perfectly stony. One entering the country at Damerlagoonda separates at the Lerry there and follows the banks of the Dindee river to Davercondah. Another ascends the ghaut at Damerlagoonda, passes over Muddymuddafoo, Ganiganpenta, and separates south close to Oodemealla, crosses the Manumbudda-vaug at its bend to Letchmapoor, Amrabad, Machawarrum, descends the Tullapulla-Coorva pass to Rungapoor, Atchamapett and Hyderabad.

Another enters the country from Allotum, crosses the Kistna (here a ferry) south three miles of Chintagoodium, to the village and joins the road to Marudgoo.

That which separates from Marudgoo continues to Goodoor, a ruined village; thence crosses the Manumbudda-vaug, ascends the Amrabad table to Oopanootla and Trimullapoor, and descends to Amrabad. The whole of these roads are traversed by the Brinjaries, whose traffic consists of salt and grain.

A couple of roads are directed to Purwatum and separate at Atchampett; one proceeds south to Sowtapully, Banall, and Billakull, ascends the Mundel-Coorva

ghaut—which is the best of the two. The other ascends the Tullapulla-Coorva ghaut to Moonanoor, thence south over the Muzra villages of Kolem, Wuttyvailoopully, Surrazloopully, crosses the Kistna to Parwatum. This is very indifferent. They are frequented yearly by the votaries that proceed in multitudes to the shrine of Mulladarja, the celebrated deity of the temple. They admit only of laden cattle.

Soil.—The soil throughout the Ghunnapoora and Khundoor pergunnas is red and sandy chiefly. The valley or paddy lands incline to a black loam, but not of the richest kind. The bed and vicinity of the tanks are of a similar description, and adapted to the culture of cotton and chenna.

The soil of the Amrabad and Godhull pergunnas is chiefly red, or what is termed by the inhabitants Tova, very favourable for dry grain cultivation. Black loam is also to be seen, but not in abundance.

Productions common to the country are some Tamidialloo, Sudjalloo, Pessaloo, Oolavulloo, Nool, Guddynool, Amidialloo, Bibberkerloo, Jonelloo (of two kinds), Chennagaloo, Noorkerloo, Korelloo, Yavulloo, and Wudloo. In gardens tobacco and chillies, &c.

The hills and forests yield honey, wax, Neemapundoo, Janapundoo, Wellagapundoo, Toonkypundoo, Yeddooroo, Hoopoo or Bamboo Salt, Sarapappoo, Epapoo, Chensoogudda, Jeedeegingaloo, Jeedeepullakulloo, Karakoyaloo, Kundaguddaloo, elks, hides, bears and tigers' skins.

Manufactures and Trade.—Those of the Ghunnapoora and Khundoor pergunnas consist of bangles, cumbles, coarse cloths, and a small quantity of salt and salt-petre, toddy and arrack. Indigo is manufactured at Polkapully.

The manufactures of Amrabad and Godhull pergunnas are coarse cloths, toddy, eppapoo arrack, cumbles, oil and a little iron.

The imports consist chiefly in salt, cocoanuts, suparee, wheat, cloths, gunpowder and paddy.

The exports are grain, bamboos, timber and ghee.

Chief Towns.—Ghunnapoora, the capital of the Circar, has already been described under the head of "Droogs."

Amrabad, the kusba of the pergunna, is a large village enclosed by a mud wall, and has a mud fort, in which resides the Zemindar. It is chiefly inhabited by Hindoos of the Yellama caste and a portion of Mussulmans. There are several bazar shops, and it holds an annual fair. Many of the dwellings are now seen in ruins.

Kundoor, the kusba of another pergunna, is a large and populous village containing from 150 to 200 houses, chiefly terraced.

Bandapilly, the kusba of the pergunna, is situated on the highroad from Hyderabad to Kurnool at the foot of a high hill, a primary point of the survey. It has about 80 houses.

Yennamungundla, another kusba, is in a ruinous condition. Newapett, or the new town, contains a number of bazar shops and many opulent merchants reside in it.

Tandcondah, another kusba, is a large village, from 150 to 200 houses, and the seat of the cutcherry. It has several bazar shops. It is situated in a fertile valley with several other villages, viz., Nagasal, Ippullapully, Gazulpett and Anantagur, flanked by ridges of hills on the north and south. These are all moderately large, from 70 to 100 houses, chiefly inhabited by weavers and cultivators of the soil. Gazulpett is the residence of a Deysmook.

Atchumpett is surrounded by a mud wall lately erected on the lands of the mouza villages of Wollaputla and Toongapoorum, which are at present in ruins. It is chiefly inhabited by Kamaties, some Hindoos and Mussulmans.

Manopett, Sankulmuddee, Rossalla, Payoor, Oopurpully, Daverkudra and Peddamundadee, all large and populous, containing from 150 to 200 houses each, chiefly terraced.

Manopett, Oopurpully and Rossalla are residences of Deysmooks, and Daverkudra of a Naib.

Judcherla is the seat of the cutchery and the residence of the Government officers. It is a small village, and has several pagodas all fast falling to decay.

Kowrumpett, subordinate to it, stands half a mile N. E. It is a moderate-sized village on the same road, and has several bazar shops.

Mulgerra is a sizeable village on the highroad, and is remarkable for its extensive paddy lands and tank.

Kurna is a good-sized village situated west at the foot of a ridge of jungly hills. It has a neat small guddy and is the residence of a Deysmook. It has extensive and well-cultivated paddy lands. There are many bazar shops.

Boorgapully and Tandparty are middling villages, from 50 to 70 houses. The former has numerous tanks and extensive paddy cultivation.

The remaining villages of the Bandapilly pergunna are small, from 10 to 20 houses, and in a wretched state.

Palmoor, the kusba of a putty, is a very large village enclosed by a mud wall, with regular streets and bazars, and contains about 500 houses, several Hindoo pagodas, and neat wells for the accommodation of travellers. It is situated between two tanks on the road to Jedcherla by the villages Yenconda, Uppunapully and Sankeripully, a ruined village at the foot of the hills. There are several tanks and an extensive sheet of cultivation to the south of it.

Potalamuddagoo, Ravellapully, Palconda, Dhumastapoor and Amistapoor are middling-sized villages of 40 to 80 houses, chiefly in ruins. The two former are situated east of the highroad.

Chinna-Dheepully is a small village situated between ridges of hills.

Baypully, Dadlanpully and Timmanainpully are small villages situated in a rich glen at the foot of a ridge of high jungly hills well cultivated.

Korconda, the kusba of a putty, is small and not remarkable; all its dependent villages are small, but well cultivated.

Murrikul is a middling-sized village having a small guddy and a neat pagoda.

Kulmonkolvay, Kothapully, Goorgoonta, Mulkapoor and Komnawarrum are small villages situated in a fertile valley, and richly cultivated both with dry and wet grains.

Niddunpully is rather a large village with a fort of high mud walls, where the Amildar resides and holds his cutcherry. The inhabitants are mostly Hindoos.

Rangapoorum, once a leading town of the district and the seat of the cutcherry, is now declining and in ruins. It is thinly inhabited by a few Hindoos and Mussulmans.

Moonanoor, the kusba of a putty, is rather a large village and reckoned a place of great sanctity.

Pudra is a populous town situated in a fine valley.

Marudgoo belongs to the four Deysmooks of the pergunna.

Singawarrum and Ganagenpenta are in mukta to the Wonparty Rajah.

Oomapocrum, Nizambad, Koddavettical, Lutteeppoor, Gollavanpully, Penvalla, Siddapoor, Munnarpully and Ghunnapoor are villages situated on the south bank of the Dindee river; they are well peopled, and chiefly by Hindoos.

Chundergoobty-putnum is said to have been once a flourishing city and the residence of the Chundergoobty Rajah. It is now in ruins, and the place marked by an irregular hedge on the declivity of a low hill, a minor arm of the Kolem table. It is $5\frac{1}{2}$ miles in a direct line north of the pagoda Streeshellum Purvatum, and 14 miles south of Amrabad.

The rest of the villages are small and insignificant. Weekly markets are held at Ghunnapoor, Newapett, Tandconda, Atchumpett, Manapett, Rossalla, Daverkudra, Kowrumpett, Kurna and Palmoor.

Tanks.—The tank at Bellakul, situated $2\frac{1}{2}$ miles south, at the foot of the ghauts, is the principal one. Its bund is high and broad and built with blocks of granite extending from one hill to another. It is called Roopulcheroo, and contains a large supply of water throughout the year. Those at Chundapoor, Rungapoor, Letchmapoor, Nuddumpully, Moonanoor, Amrabad and Bomenpully are pretty large and have water throughout the year.

Those at Ghunnapoor, Rossalla, Nundypett and Deyvurkudra are pretty large; these keep generally six months' supply, but failing in the hot weather the

paddy which they water has to be nourished by wells. The bunds are chiefly built with stones and some have very deep beds. They are filled by the periodical rains.

No others are deserving of notice, as they are early dry, and require the aid of kutchha wells to irrigate and mature the crops.

Hill Tribe.—The mountains are inhabited by a sect of hill people called the Chensoowads ; their emigration into these parts is not known even to themselves ; they, however, give an ideal account of their origin, viz., “ In the days of Ramen and Ravunnen we were considered as gollawads or shepherds ; when the war had happened between them, we signalized ourselves in the use of the bow and arrow in the service of Ramen, who honoured us with the title of Chensoowads, a distinction and dignity above our original caste, after which we separated ourselves to inhabit these wilds.” From this information I am of opinion they may have come from the southward.

Manners and Customs.—The Chensoowads differ but little from the natives of the country except that their manners are more rude, their minds uncultivated, and their appearance altogether wild. They live in very insignificant moveable huts made of the hill grass and teak leaves, and scattered over this gloomy tract ; they transport themselves over this wild country according to their convenience, as they are unaccustomed to one spot ; their food consists chiefly of the yam, which they call chensoogoodda, the bettoodta or red squirrel, partridges, peacocks, kundthy, elks, hogs, doopee, monkeys of the lion-tailed, [?] sheep, honey, and the kernels of various wild fruits. Fowls, wild and domesticated, snakes, tigers, bullocks, horses, monkeys and wild dogs are prohibited.

Language, &c.—Their language is Gentoo, but articulated in such broad sounds and broken words as to render it difficult to be understood ; they are perfectly expert in obtaining honey from the most dangerous and frightful precipices, which they barter for cloths with the Bunnias, who undo them completely in their exchanges. They are seen to keep perfect good health, and dread to leave their native forests. Tobacco is an essential article with them ; and the juice of the date, which they quaff to some excess, makes them somewhat dangerous and unmanageable ; they are in consequence frequently culpable in committing instant murder for the least of offences without the smallest fear. Though their persons promise nothing delicate, yet they are so very dexterous and nimble as to escape from the sight of any person in an instant. Their women and children are equally remarkable for the same.

Comparison [?] and Dress.—From the waste grounds that are to be met with, it is evident that this part was more populous ; at present their number may be estimated at about 100. Their dress consists of a piece of cloth about their waists and another on their heads. The women have cloths as other natives, but no jackets ; they expose their heads with the hair knotted on the very crown, short and shockingly dirty, which makes them appear very wild. The men invariably go about with bow and arrows, and some with matchlocks, which they use with great agility, seldom missing their aim.

Divisions.—They are divided into sects, portioning the mountains among them ; they never interfere or encroach on each other's limits. For collecting the produce each set has a chief, who is called Naikadoo ; he exercises the rites of marriage, quells disputes, &c., &c., on all which occasions he is rewarded with a present of some dainties and coarse cloth. They have a number of wives and concubines, according to their respective means ; they marry at a grown age ; the son becomes the heir. Their patrimony and wealth consist of a bow and arrows or a matchlock, an axe and a large knife. Their persons are middle-sized, dark and not corpulent, but cannot be said to possess beauty. They are not clean, have a good sight, and are quick of hearing. They seize any opportunity that is afforded in being employed for hire to guard cultivated lands, hew timber, &c., &c., immediately at the foot and above the ghants.

Religion.—Their religion is that of the Hindoos, which is well known as wholly absurd and superstitious. Previous to any undertaking of importance, such as a

matrimonial concern, or moving from the spot they once inhabited, or in the collection of the produce of the forests, &c., they first consult their divinities, who have no regular temples—stones and some romantic spots, distinguished by peculiar designations, where they on all occasions assemble.

Priests and Funerals.—The priest is chosen by themselves in their own sect, who is in every instance to consult the Naikadoo in whatever he may undertake; he alone when dead is buried, the rest are burnt; they are in the habit of placing one rupee and a new piece of cloth at the head of the defunct.

Religious Temples, &c.—A pagoda romantically situated at the foot of a precipitous wall running along the ghauts, enclosed in a deep valley, with another at the base of the mountains close south-west of the Moonanoor station, is worthy of attention, both for its superb structure, natural and artificial perspective, and the inviolable sanctity prevalent with the natives. These are dedicated to Oomah and Boga Myeshwars. A yearly festival is kept up here, where a fair takes place, and about a thousand assemble to pay their devotions. The feast is in Mukkra or Margaeshrum-Sunkramanum, corresponding to the 13th of January 1823, and lasts ten days, three of which are the grandest. It receives a monthly allowance of 6½ rupees from the Circar, disbursed by the villages of Moonanoor and Run-gapoorum. The road leading to it proceeds from the latter, below, to the former village, above the ghauts, built with stone steps from the foot to the summit; there are several fine preserved inscriptions on square stone pillars, excellent springs and a small flower garden, besides various other little buildings and compartments; parts of these are excavated out of the granite wall, above which huge masses of rocks emerge, and overhung by lofty trees give the whole a fanciful appearance.

A pagoda consecrated to the deity Gopalswamy at Moonanoor is of ancient date, built on a large scale, and receives a monthly allowance of 4 rupees, for defraying the ceremonial rites, from the village; some inscriptions are carved on stone, single solid granite pillars answering as stumbum, and others that served as gates formerly; the latter, now thrown down, are very remarkable.

There are two small pagodas at Amrabad, one dedicated to Ramaswamy and the other to Chenroyan; a limited festival takes place yearly, at the expense of the Zemindar and the inhabitants. Several others of diminutive structure are to be seen, scattered, and deserve no mention.

GEOGRAPHICAL MEMOIR OF THE MEDDUCK CIRCAR.

The Medduck Circar is bounded on the north by the district of Nirmal, on the east by Yelgundel, Moolangoor and Bhonagheer, on the south by Golkonda and Koilkonda, and on the west by Beeder and Kowlass. Its greatest length north and south is 80 miles, east and west 76 miles; it comprises an area of 2,642½ square miles: of this 492½ is laid out in wet cultivation, 670½ in that of dry grain, and 1,480 square miles is taken up by hills, wastes and jungles. It is divided into twelve pergunnas, viz.:—

Pergunnas and Principal Villages.—Medduck or Havalee, Goodoor, Nursapor, Huttanoor, Putloor, Takinhall, Gudjvel, Veyloor, Toopraney, Ibrahimpatam, Udloor and Kullupgoor.

Medduck or Havalee Pergunna.—The Havalee or Medduck pergunna contains 139 principal and 94 subordinate villages. Medduck, the kusba or capital of the Circar, is situated in latitude 18° 2' 44" and in 78° 17' 47" east longitude; the town, which is walled and rather extensive, is built round the northern and eastern base of a fortified hill of considerable height and extent; the houses within the wall are generally tiled and well built; on a moderate estimate, the number of inhabitants may be computed at between four and five thousand, including a small garrison of irregulars; it is the residence of the Talookdar and Despandia of the pergunna, and has a weekly market on Fridays for the sale of coarse cloths, cumblies, grains, fruits, &c.

The hill fort, or droog, a place of some strength, consists of two ranges of fortifications, the upper of which surrounds the crest of the hill and contains an extensive granary and a small mosque. There is also a large well which furnishes a constant supply of water. The lower range runs nearly in a parallel direction, with additional outworks where the natural advantages do not afford a sufficient protection; a few pieces of ordnance of various calibre lie scattered about the ramparts, but are for the most part unserviceable. A guard of a jamadar and fifty irregulars constitute the ordinary garrison. The works appear to be much neglected and are considerably out of repair; the only ascent, which is from the east, is by a flight of steps, and passes through four successive gateways before the summit is attained.

Coochunpully is a large village which derives its importance from a celebrated pagoda in its immediate vicinity; the pagoda, which is dedicated to Venkata Sherloo, is much frequented at all seasons, but more particularly during the month of April, at which period the festival in honour of the tutelar deity takes place, and attracts immense multitudes from the surrounding country.

Kullupgoor Pergunna.—Kullupgoor, the kusba of the pergunna, is only remarkable for a stone pagoda, the only remains of its former consequence; this once large and flourishing town is at present in a dilapidated state; it has two subordinates, Gunjeegooda and Ungadeepett; the latter is only remarkable for a large Mussulman tomb and paper manufactory.

Sungareddypett, the kusba of the talook, is also the seat of the pergunna, situated in latitude 17° 37' 51" and longitude 78° 8' 51", and one and a half miles south of the Manjera river. It is surrounded by a ditch and strong stone wall with bastions, the highest cavalier of which is the citadel in the centre of the town, a trigonometrical station; the streets within the town are regular, and there is a neat pagoda at its N. W. angle and an edga about a mile to the west; a weekly fair takes place on Fridays; it is the residence of the naib of the talook; the tank belonging to it is situated three miles south and deserves attention from the great body of water it retains throughout the year, which irrigates a vast extent of rice cultivation, besides supplying twelve villages with water; its bank is irregular, about two miles in length, and very strong.

Rajumpett, its subordinate, is of greater magnitude than the former, and has a strong stone guddy and citadel; it is situated one and a half miles S. W. of

Sungareddypett, has several small tanks in its neighbourhood, nourishing extensive sheets of rice cultivation as well as numerous sugarcane and betel plantations. Dry grain is also cultivated in abundance.

Oondole, cūsba of the talook, situated on the highroad to Hingolee, is conspicuous for a large gurry situated at the base of a low ridge of quartz hills, with a large tank bordering close on its west; the town within is large; it has two large pagodas and a mosque, also two subordinates, Jageepett and Massanpully; the former is situated a mile N. of the cusba between two large tanks. The town is large, surrounded by a wall and ditch now in ruins; a neat Jain pagoda is seen within, and another about two furlongs east on a low ridge, dedicated to Joginal, which is held in great esteem on account of its superior sanctity; an annual festival is celebrated here in April, which lasts the whole month; it is also the residence of several opulent merchants and traders. A weekly market takes place on Sundays, well attended by the inhabitants of the neighbouring towns and villages, and animals [?] also reside here. A mile N. of Jogeepett is Anuntasagur, a small village on the highroad, only remarkable for a very large tank. Its bank is strongly faced with stone, and one and a quarter miles in length. Suddasheepett, situated on the highroad to Poona, is a large and populous trading town, surrounded by a strong wall and ditch, with several bastions, and four entrances or gateways; the streets are at right angles with a cutcherry in its centre; it has several merchants' shops; a very extensive trade of grain of various kinds is carried on here with Hyderabad and Poona; there is a musafferkhana in the centre of the town for the accommodation of travellers.

Moonpully, a large village situated seven miles north-west of Suddasheepett on the highroad to Beeder, has two pagodas, in which festivals are observed annually. Nizampett, five miles N. W. of Kullupgoor, a large village consisting of from 200 to 300 houses, is situated about a mile S. of the Manjera, in a thick grove of mango trees. Gungalur, one and a half miles north of the river, is conspicuous for a large tank, and a weekly market held on Mondays, and is held in jaghir. Sungoopett, situated one and a half miles S. of Oondole, is only conspicuous for a neat gurry on a ridge of quartz; a body of irregular horse is stationed here for the protection of the districts. Ramapoor is a small village. Peddapoorum and Moossalapoorum consist of from 200 to 300 houses, and are situated half a mile W. of the highroad to Hingolee. These lands are well cultivated with paddy and dry grain, and have several large tanks which retain water throughout the year. Moodoomanikum, Chowtacoor, Pothreddypully, Koorpoal, Yendacoal, Shevumpett, Vissavaspett, Korkoor, Vellatoor, Nundy, Autkoor, Dikoor, Singoor, Peddareddypett, Yenegatala, Moondavenpully, Jarpoal, Talkootpully, Murravullee and Kondapoor, &c., &c., are villages well inhabited, from 150 to 200 houses, with several tanks, well cultivated; the rest of the villages of this pergunnah, though small, keep up a considerable cultivation of wet and dry grain.

Goodoor Pergunna.—Thirteen principal and two subordinate villages are comprised in this pergunna; the cusbah is situated in latitude $17^{\circ} 47'$ north and longitude $78^{\circ} 24' 30''$ east, in a broad and fertile valley between two moderate-sized tanks; it has little to recommend it but an extensive paper manufactory. Shevumpett, its subordinate, is encompassed by a stone wall and contains a small citadel; it is situated half a mile north of the kusba, and at the eastern extremity of a large tank on the trading road from Medduck to Hyderabad; it is the seat of the pergunna; the town within the walls is large and populous, it has a weekly market, and is surrounded by numerous tanks and an extensive tract of wet cultivation.

Bejallapoor, Potawarum, Goteamookla and Sendee are villages containing from one to two hundred houses, and are only remarkable for their manufactories for an inferior kind of paper; the remaining villages are small and merit no attention.

Nursapoor Pergunna.—Nursapoor, the cusba of the pergunna of that name, is composed of 44 principal and 7 subordinate villages; of these there are only a few that merit attention; the cusba and seat of the pergunna, once a large and populous

town, is now, with the exception of a few huts within its mouldering walls, a mass of ruins, half a mile south of it is a remarkably large tank surrounded by ridges of hills, with a strong bank well faced with stone and a sluice of neat masonry ; its waters are distributed to several villages by means of canals.

Muddoor, situated three miles south of the cusba, at the southern extremity of a tank, is large and populous ; paper is manufactured here, and a weekly market held on Saturdays. Bajarampett is a large town, but in a wretched condition ; it was once distinguished for its opulence and trade and had its regular market days. At present it is merely the habitation of a few Bunnias, and its cultivation is very scanty.

Yellapoorum, a small village surrounded by a wall at the western extremity of an ordinary-sized tank ; adjoining the village to the south is a low hill with a large tree on its summit, which is a trigonometrical station ; the rest of the villages in this pergunna are small, containing generally from 30 to 50 houses, and situated in glens and valleys well cultivated and watered by their respective tanks.

Huttanoor Pergunna.—Huttanoor or Huttanawarum is situated in latitude $17^{\circ} 44'$ N. and longitude $78^{\circ} 12' 30''$ east, is divided into two divisions or talooks together including 51 principal villages, 13 of which comprise the Sirpoor talook ; the cusba of the pergunna is situated 2 miles east of the Manjera, in a fertile valley richly cultivated with paddy, and watered by numerous large tanks ; the town, though formerly large, is now in a decaying state ; there is a neat pagoda about half a mile north of the village. Its subordinate Newabpett is situated a mile west of it, and another east of the Manjera on the highroad to Hingolee. There is a weekly market held here on Fridays. Kassalla, situated 2 miles south of the cusba, is at the south-eastern extremity of a large tank, and on the highroad to Hingolee ; the village is large and populous. Sadulnuggur and Tarkhanpett, subordinates to Khanapoor, are large villages, walled, and surrounded by numerous mango and tamarind groves, and situated on the highroad to Hingolee ; they have weekly markets, the former on Thursdays and the latter on Sundays. Sirpoor, the cusba of the talook, is the residence of a Zemindar ; it has a gurry and citadel, both of which are now very much out of repair ; the town, though large, is in a ruinous state ; a tank belonging to it on the S. E. is very large and strongly faced with stone. Lingumpully and Juggumpett are its subordinates ; the latter is a small town and holds a weekly fair, and has several good-sized tanks, which water a large tract of paddy cultivation ; the date tree grows here in great abundance. Sundoor, a small village, situated about a mile east of the Manjera, is only conspicuous for a pagoda on a low height, and which is a trigonometrical station. Yeunagundla is a large straggling village a mile east of the Manjera. Muddoor, Koonyalla, Ponnyalla, Chittakoola, Chillupchade, Sowderpett and Chippultoorty are all large and populous, containing from 200 to 250 houses, and situated about a mile east of the Manjera ; the lands are well cultivated with paddy and dry grain. Tegarampett, a subordinate to Avanja, has a weekly market on Tuesdays. Kurtumpett, situated at the southern extremity of a large tank ; it is conspicuous for a neat pagoda in its centre dedicated to Gopalswamy ; the remaining villages in this pergunnah are small. Kazipully, or Kazipett, is a tolerable-sized village of about 300 dwellings and a decent gurry, and surrounded by extensive tamarind groves ; it has a tank half a mile to the south and a small quantity of wet grain.

Putloor Pergunna.—Putloor, the cusba of the pergunna of that name, is in latitude $17^{\circ} 35'$ and longitude $77^{\circ} 50'$; it has one subdivision, Mominpett, and comprises 54 principal and 8 subordinate villages. The town is situated at the foot of a table hill, and enclosed on the west and north by a sheet of rice cultivation watered by a small nulla ; it is surrounded by a wall now in ruins ; close south of the town is a small fort on a table hill, with a ruined tomb on its summit. Mominpett, the seat of the pergunna, is situated on the declivity of a gentle slope, and on the trading road, which here passes between two streams lined with date trees. The town is surrounded by a strong wall with bastions and several pieces of ordnance ; a weekly market is held here. Yekkamaandy is a large village and has a mosque on a table hill 2 furlongs north of it. Muddullapully, Boozrook and

Kotamurpully are ordinary villages containing from 200 to 300 houses ; the latter is situated on a table height about 2 furlongs west of the trigonometrical station. Poolmondy is a large village situated about a mile N. of the Moosey river, with a numerous population ; the remaining villages have from 50 to 80 or 100 houses each ; the produce in general throughout this pergunnah, with a few exceptions, is one continued sheet of dry grain of different descriptions.

Takmhall Pergunna.—Takmhall is comprised of 47 principal and 21 subordinate villages ; it is the cusba of the pergunnah, and situated in latitude $17^{\circ} 58'$ and longitude $78^{\circ} 4'$, about 2 miles west of the Manjera river. and in a rich and fertile valley ; it is a large place but in a ruinous state ; from its appearance it must formerly have been a place of some note ; the town is enclosed by a wall and ditch now entirely in ruins ; on the west is a large tank which retains water throughout the year, and irrigates a great extent of rice cultivation, and other esculent plants ; it has seven subordinates, scattered about the valley. There is a weekly market on Tuesdays. Popunnappett, or Nimmaghee, is a market town, surrounded by a fortified wall with towers and in good repair ; it has several large tanks, which supply an extensive sheet of wet cultivation. Alladroogum is only remarkable for its gurry and palace ; the town is large and straggling ; it also has a weekly market ; its five subordinates are almost all in a ruined state and of no note.

Bodemerpully is a small village situated close east on the highroad to Hingolee ; it is only remarkable for a pagoda on a low height. Momdapoorum and Chillyware are middling-sized villages on the west of the Hingolee road. Talavelma, Polwunsa, Tumpapoor and Byrandibba are villages of from 200 to 250 houses each with ruined guries. The country in their vicinity is occupied by extensive tracts of wet and dry cultivation ; they have several tanks, that of Byrandibba is the largest.

Yelpgoondla and Yelloopett, once of some size and consequence, are at present reduced to a few straggling huts situate at the foot of a ridge of low hills ; the former has two subordinates, in an equally wretched and neglected state. The other villages have from 60 to 100 houses each, and their lands are well cultivated.

Gudjvel Pergunna.—Gudjvel, the cusba of the pergunna, is situated in latitude $17^{\circ} 51'$ north and longitude $78^{\circ} 43'$ east ; it is remarkable only for a few Mahomedan tombs in its vicinity ; it is a town of small extent at present, rendered so probably from the cutcherry being removed to Siddeepett, about 11 coss distant from it, under a superstitious impression that the place was unpropitious to the naibs or chiefs who formerly made it their residence. Gudjvel has two subordinates, Sungoopully to the west and Rajareddypully to the east, and a large tank on the west. The pergunna comprises 118 villages, and one talook called Doobac, containing 19 villages. Siddeepett is a large town of about 1,000 dwelling-houses, and derives its name from a Siddee or African who founded it. It is the residence of a naib and the seat of the pergunna of Gudjvel. The town was formerly surrounded by a wall, of which there are traces still remaining. It has a large-stone built gurry (or citadel) in the centre, and regular streets intersecting each other at right angles. This place is reported to have been once of considerable importance. The monuments of two British officers who were killed in an engagement in its vicinity are now to be seen in the southern precincts of the town, but without inscriptions.

Siddeepett is famous for its braziery, and has several bazars ; it is the residence of several weavers of cloth and cumblies, or coarse blankets ; toddy is produced in large quantities ; arrack is also manufactured here ; it has a weekly market, and an excellent tank faced with granite to the south-west. A body of 200 Nizam's irregular infantry are quartered here for its protection.

Yelsanpally is situated about 2 miles S. W. of Siddeepett ; it is a neat village, held in jaghir by Raja Chundoolal, and has a fine tank adjoining to the westward. Ponalla, Buckreebheypel and Murpadiga are ordinary villages with several tanks, situated in a thick jungle along the eastern general boundary of the Circar. Chendoolapoor, Ravensa, Pooloor, Ravarcokul and Ragawapoor lie N. and N.W. of Riddeepett ; they are moderate-sized villages with large tanks and extensive

tracts of rice cultivation. Pooloor has a neat pagoda six furlongs to the N. on a low rock, where an annual festival is observed in honour of Ramaswamy. Chendoolapoor has also a pagoda on a hill, which is a trigonometrical point.

Narainraopett, a neat village of 300 houses, is the residence of a Despanda, and has a gurry in its centre, flanked by two tanks E. and W. which irrigate a large extent of cultivation. It has four subordinates, viz., Letchmydeopully, Kodunramypully, Mootiampett and Anantasagur.

Narainraopett and its immediate vicinity is considered extremely unwholesome, the inhabitants, men, women and children, being almost invariably affected with stiffness and contraction of the limbs; on some it assumes the appearance of the palsy, one-half of the body being rendered perfectly useless, whilst on others the limbs are quite distorted, the joints of the elbow, wrist and knees swelling, prodigiously accompanied with incessant pain; this general unhealthiness may perhaps be ascribed to the extensive swamps in the neighbourhood of the village.

Cheypel, Kasalabad and Pathareddypett are the residences of three several Zemindars. The cultivation about these places is very extensive and rich, from the facilities afforded by the Maunar river, along the banks of which they are scattered the tank of Pathareddypett may be considered the largest in the pergunna. There is a cluster of small pagodas belonging to it, situated just at the junction of the two streams, called Kodelly, where a yearly festival is observed, which lasts a fortnight. Toddy is extracted here in great abundance, and arrack prepared from it. Jalligaon, Tirmalapur and Gumbeerpoor are the seats of three Despandas; the first has a neat mud-built ghurry which stands between two strips of paddy north and south, and several ordinary tanks with a small patch of dry grain. Tirmalapoor is similarly situated, and Gumbeerpoor, which is more fertile than the two former, lies near the northern extremity of the Circar, the waters of which run into the Kootilly Vag. The insulated village of Wortipully, belonging to the Bhoagheer Circar, is under the Gumbeerpoor Despanda.

Akawarum is an ordinary-sized village, and has three subordinates—Ragwata-poor, Goosempully and Ramakapett; this latter village at present is much larger and in better condition than its principal; it lies one mile N. W. of Letchapett.

Siggoonpully lies half a mile N. of the trigonometrical point of that name, and close to the southern boundary of the district; it has four small tanks to the west and south, which derive their waters from the heights adjacent to the hill station.

Pediched and Andipoor are large villages and remarkable for their extensive tanks and grain fields; they are situated west of the Maunar river, and the country round about is open, and covered with dry grain cultivation. Pediched borders on the highroad to Yelgundel from Hyderabad.

Dowlatabad, Moorskhanpett, Anachpoorum, Rapool and Ramasagar consist each of about 200 or 300 houses, and are the only remaining places of any note besides those already described in this pergunna.

Dowlatabad must have once been of some consequence; it is situated about two miles east of Nullagoota, surrounded with large tamarind groves and jungle, and has two small tanks; there is a small rocky top at the distance of 2 furlongs from the village.

Moorskhanpett, an ordinary-sized village, the turret of which is a secondary point; its tanks [?]. About two and half miles to the S. E. of Moorskhanpett stands Anachpoorum; this place has a lofty and well-finished turret of lime and stone, a few palmyra trees are situated close west of it, and a large tank irrigates a great extent of paddy; this village is surrounded with dry grain; it has a subordinate to the east called Edbarkhanpett. Rapool, a jaghir village, lies one and a half miles eastward of Anachpoorum; it is conspicuously situated on a swell covered with dry grain, and has three good tanks to the west. Ramasagar is a respectable village with a gurry, the residence of a Deysmook, situated on the highroad from Hyderabad to Yelgundel. The large hill one and a half miles to the west is a trigonometrical point.

Doobac, the cusb of the talook of that name, is a respectable and compact little town, and is the residence of a Deysmooknee. It is situated on low swampy ground closely surrounded by several spacious tanks and vast tracts of

rice fields. The town is encompassed by an old wall and ditch and has four gates; a strong stone-built citadel stands in the centre, with a few cannon; a body of Seikhs and Arabs are kept for its defence. Doobac has three subordinates, viz., Charapoor, Ramareddypully and Letchapett, the two former are indifferent villages, but the latter is an extensive town and in appearance surpasses its principal. It is surrounded by a high wall in good condition, with bastions at the angles and a small gurry to the west, and is the residence of several Sahoocars and opulent Banians. A market is held here once a week. This place is situated one mile west of Doobac, and is divided from it by a large tank, whose bank extends the whole length and serves as a road, which is the only communication. Doompulpully and Pedda Goondavelly, belonging to Doobac talook, are villages with large guries, their tanks also are large, and water extensive tracts of rice fields. These villages are situated between one and three miles S. W. of Doobac. Dermajeeptt and Chittapoor are large places, under the same talook, and lie between two and four miles west of the cusba. The cultivation is extremely extensive and reaches down to the Maunar river.

Chittapoor has a subordinate, called Yenakoorty, which is distinguished by a neat fortification on a rock; it lies one coss north of the principal, on the right bank of the Maunar river, at its junction with another large stream which descends from Bonalla; hence the river assumes the name of Koodelly-Vag. Motey, of the above talook, is situated one and a half miles south of Chittapoor, near the Maunar; it has a good tank close north, which irrigates a tract of paddy extending up to the bank of the river.

Bedjgaon, Dillalpoor and Ramawarum belong to the Doobac talook also, though at the distance of nine coss from the cusba; the former has a gurry in the centre and a subordinate, Sharygooda, about a mile distant, the N. E. turret of which is a secondary point; the country surrounding those villages is rather open with several ordinary tanks and patches of wet cultivation. Ramawarum has a good gurry, and lies about three coss west of Bedjgaon, and one coss north of Ramasagur hill station.

Kothapully and Peddacheekond are respectable villages north-west of Doobac, and one west of two jungly ridges [?]; they abound with several tanks.

Veyloor Fergunna.—The pergunna of Veyloor comprises 25 principal villages, out of which five are in jaghir. It is situated in latitude $17^{\circ} 48\frac{1}{2}'$ and longitude $78^{\circ} 35'$, two miles west of the highroad to Yelgundel; the cusba appears to have formerly been of some consequence, it is now the residence of some opulent Soucars. There is a neat pagoda at the southern extremity of the village, dedicated to Nursumloo Deo, where an annual fair takes place, and a weekly market. It has a few good tanks which retain water throughout the year, and supply the lands up to the Paspooerr river with water.

Meenacheepett, a trading village situated three miles south of Veyloor on the Yelgundel road, is in a neglected and ruinous state; it has, however, a weekly market; the tanks in its vicinity retain water for six months in the year, and supply extensive sheets of paddy. Kokunda is a neat village four miles S. of Meenacheepett; it has a strong-built gurry, which is the residence of the Deysmook, and is situated at the eastern extremity of a large tank which retains water throughout the year. There are a few bazars in the village and a neat pagoda; the place is surrounded with numerous mango groves, which add considerably to the revenue. Its subordinate Sungumgooda, is a good village half a mile further east, and at the western extremity of a good tank; it has a gurry, the residence of a Jaghir-dar. The highroad passes between this and Kokunda village. Toomakey, a tolerable-sized village, is situated six miles S. E. of Veyloor; its streets are broad and clean, crossing each other at right angles, with a gurry to the west, the residence of a Deyspandia. It has a tank about two miles to the south strongly faced with stone, and a floodgate built of masonry to the west extremity, through which the surplus water passes, and after which the stream assumes the name of the Paspooerr; it has a subordinate, viz., Goorummapett. Warrugul is a large village situated $4\frac{1}{2}$ miles east of Veyloor; it is surrounded by a strong stone wall with a citadel in

the centre, the residence of the Deysmook ; a neat-built pagoda is also seen in the village, dedicated to Gopalswamy, where an annual fair takes place. It has seven subordinate villages, viz., Mubreddypully, Ummapully, Ramanapett, Chairygooda, Chowderpully, Ownswanpully and Letchmakapully, all situated about $1\frac{1}{2}$ miles from their principal ; it has also several good tanks, which irrigate large tracts of wet cultivation. Dry grain also thrives remarkably well here. The rock to east is a trigonometrical point. Several Pandakoolies or ancient tombs are to be seen in the neighbourhood. Moalug is a neat village situated $2\frac{1}{2}$ miles S. E. of Warrugul ; it is encompassed by a square wall strongly built with stone with a citadel in the centre, the residence of a Zemindar. It has a few good tanks, some of them in good repair, and retain water for six months in the year, irrigating large sheets of wet cultivation. It has also two subordinate villages, viz., Nagareddypully and Rookmapoor, both well populated. Bolalarum, about $3\frac{1}{2}$ miles further to the S. W. and 2 miles S. E. of Toomakey, appears to have been a village of some strength and consideration, from the remains of a strong citadel seen to the west, with a cavalier in its centre ; it has two good tanks with extensive paddy lands, and a top of mango and palmyra trees about one mile to the N. E.

Sheclasagar is a remarkably large village situated 4 miles south of Moalug, and the seat of an opulent Zemindar ; it has a strong-built gurry, and a neat pagoda dedicated to Gopalswamy, where an annual festival is observed. Unnasagar, one of its subordinates, about one mile from it to the west, is a neat village and held as an agrarum by a Brahmin ; the other two, Agoonootla and Moostappagooda, are small. The tanks about the vicinity (of these), although small, irrigate extensive sheets of paddy, and dry grain is cultivated about these (villages) to a great extent. The rest of the villages in this pergunna are small, consisting of from 50 to 60 houses, with one or more tanks to them.

Toopraney Pergunna.—Toopraney, the cusbah of the pergunnah of 52 villages, is situated in latitude $17^{\circ} 50'$ and longitude $78^{\circ} 31'$, of which Dontee is a putty or talook of 20 principals. Toopraney has a large gurry to the N. E. with a citadel in its centre, the town is large, holds a weekly market, and carries on a trade in cotton to some extent. It is the residence of a Naib. A large tank which supplies a considerable extent of cultivation is situated close west of the Paspooerr river. The highroad to Nagpoor from Hyderabad passes along the west end of the tank. It has 3 subordinates, viz., Goondareddypully, which stands 2 miles N. E. of the cusba on the opposite bank of the Paspooerr river ; it has a large tank 3 furlongs to the east ; the subordinates to the west, Machinapully and Mulka-poor, are about the same size as the above ; their tanks are small and situated amidst low jungle. Yennavully is a moderate-sized village, situated between two tanks, and one mile east of the highroad to Nagpoor. It appears to have been once a place of some note, from the appearance of a gurry, which is now fast falling to decay ; the village is thickly surrounded with tamarind and mango groves ; its lands are very extensive and fertile. Ghunnapoor is a neat village, situated about 3 miles west of Veyloor ; it has a large tank, about one mile to the south, strongly faced with stone, with two sluices, and retains water throughout the year ; it supplies the lands of Ghunnapoor and Allapoor with water. There is a pagoda to the east on a low rock, which was formerly of some consequence, but is now totally neglected and in ruins.

Woddapully is situated a mile W. of Ramasagar hill station ; it is encompassed by a strong stone wall with bastions at regular intervals. The tanks belonging to it are small, and the cultivation scanty, the surrounding country very rocky and jungly. Ramtapoor, Potunapully, Gollapully and Soorawarum are good-sized villages of from 200 to 300 houses. Ramtapoor is situated in the midst of rich wet grain fields on the highroad to Nagpoor, and is bordered on the west by a cluster of hills. Potunapully and Gollapully have several small tanks surrounded by low rocky ridges. Soorawarum, which has three subordinates, is erected on a fertile open spot ; the S. E. angle of its gurry is a trigonometrical point ; adjoining it is a large tank, which, after supplying the fields below it, runs into the Paspooerr river.

Dontee, the subdivision of Toopraney, lies in latitude $17^{\circ} 49\frac{1}{2}'$ and longitude

78° 27', at the foot of a low rock ; it is encompassed by a strong-built stone wall, with a neat and strong citadel in the centre, the residence of an opulent Zemindarnee, who is also the Deysmooknee of the talook. Its tank, 2 furlongs to the west, is large with a strong embankment, and nourishes an extensive tract of paddy ; a few opulent merchants and shroffs reside here, carrying on a trade with the neighbouring villages. This place abounds with toddy and arrack, from which the greater part of the revenue is derived ; a weekly market is also held here.

Jeedpully is a neat village situated one mile N. of the southern general boundary of the district, and 4 furlongs east of the highroad to Nagpoor ; it is surrounded by a stone wall, fast falling to ruin ; a few tanks are seen in its vicinity, which water an extensive sheet of paddy. It is the residence of a Despondea. Purrekabunda, from its appearance and situation, seems to have been a place of some note, it lies immediately below an ordinary tank ; a portion of it is well cultivated with paddy, and has extensive mango topes. Gowtagooda, its subordinate, stands one mile south at the foot of a rocky ridge. Patawarum, Palatta, Sikkundrapoorum, Allapoor, &c., &c., are villages of from 60 to 100 houses, having one or more tanks attached to them with a few acres of paddy ; they have nothing else worthy of remark.

Bomaxarum, though a principal village, consists of only a few huts ; it has two subordinates, Nagasanpully and Masaibpett, the latter of which, however, is a large and respectable place, situated in the midst of paddy fields, and between the Nagpoor road and Puspooerr river. It has a fine moosaferkhana 3 furlongs north for the accommodation of travellers, and a large tank 6 furlongs south, which communicates with the above river. Islampoor, formerly termed Juggadeoputnum, stands about 2½ miles S. of Masaibpett, with two tanks, and is only remarkable for its neat pagoda to the north, where an annual feast is observed. The remaining villages of this talook are small and of no note.

Ibrahimpattam Pergunna.—Ibrahimpattam, the cusba of the pergunna of that name, once of great extent and importance, is now the abode of a few miserable wretches whose habitations are indicative of their extreme poverty. It has 24 principal villages, and a large tank situated close west of the village, which, but for the scantiness of the population, would yield, in proportion to its waters, a much larger quantity of wet grain than at present. The surrounding country is very hilly and thickly covered with jungle. Rajpett or Lingapoor, a respectable town six miles south of the cusba, is the seat of the Ibrahimpattam pergunna, and has one good street passing through it, with a gate at the eastern extremity. A large tank, with a few ancient pagodas, lies south of the petta, and a wide space of paddy cultivation watered by the tank gives the whole a rich and flourishing appearance. A weekly market is held here. Its subordinate, Nanikrampett, one mile to the east, is in ruins.

Wodarum is an ordinary village with a stone-built gurry. It is remarkable for its large tank and extensive cultivation of wet grain. The highroad to Nagpoor lies about 3 furlongs west of it. Anasagar, of the same pergunna, is situated 3 miles N. E. of it ; its waters descend into the Wodarum tank.

Nizamport and Rayellapoor are good villages with guries, and 2 miles distant from each other ; the former is pleasantly situated between two tanks, well cultivated, and the latter at the foot of a small ridge of hills covered with jungle. Konapoor, one and a half miles to the N. W. stands between a small top on whose summit a few indifferent pagodas are erected, and some ceremony annually observed. Derma-warum is situated a coss N. E. of Yellamulladeogutt table ridge, has a fine tank close south of the village, also 3 koontas. Iron ore is taken from the above table ridge and conveyed to Anasagar, where it is smelted.

Udloor Pergunna.—Udloor, the cusba of the pergunna, situated in latitude 17° 21½' and longitude 78° 23½', is a miserable place of about 100 houses. It is the residence of a Zemindar, and consists of 48 principal villages, of which 8 form the talook of Becanoor ; an ordinary-sized tank alone belongs to it, adjoining the village to the south ; the chief grains cultivated in this pergunna are jowary, chennah and other pulse.

Reddypett lies at the N. E. corner of the general boundary common to Nirmul and Yelgundel, it is a good-sized village and has a gurry, the N. W. turret of which is very conspicuous, and built of stone and mortar. It has two tanks, situated close east and west, and the villages Muddicoonta and Gunnappoor flank it one mile to the north and south.

Kamareddypett is a place of some consequence from its being the seat of the pergunna; it has a strong gurry though old, and is protected by a party of Arabs; it is situated on the highroad to Nagpoor from Hyderabad. The tank belonging to it is large, and, with the assistance of Mullareddypett tank, waters a large tract of paddy ground. There is an Edgah situated half a furlong west of this village, now going to ruins.

Yellareddypett is a respectable place with a stone-built gurry, and stands 2 miles S. E. of Mullanagootta hill pagoda, a trigonometrical point. It has a fine large tank, which irrigates a very extensive tract of paddy in conjunction with the waters of Udloor, and which with the Reddypett, Kamareddypett and other smaller streams ultimately form the Bhovanipett river. This place has 2 subordinates, Israjivaddy and Rungumpett, which latter is a neat town surrounded by a stone wall with several bastions.

Nughur, Mootiampett and Bhovanipett are large-sized villages, with an ordinary tank to each; the first of these is surrounded with dry grain and is situated half a mile east of the highroad to Nagpoor. Mootiampett stands on high ground encompassed with paddy fields, and Bhovanipett on the high bank of a river, which takes its name from it; its lands are richly cultivated with wet grain.

Ramreddypett is a large and respectable town situated close to the northern extremity of the Circar; a strong stone wall in good order encompasses it, also a wide ditch. The streets are regular, and the houses chiefly tiled and terraced. A citadel or gurry stand at the north-west corner of the town, also two large and decent pagodas erected on the left of the main road, dedicated to Ramaswamy and Suddashedeo, where a festival is celebrated annually. Though the tanks belonging to this place are very small, the paddy cultivation here is extensive.

Rajumpett and Chinna Mullareddypett are large and populous; the former is strongly walled in, has bastions at the angles, and four gates, and is surrounded by a ditch. Considerable traffic is carried on in cloths of various textures which are manufactured in both of these towns. They are the residences of many opulent persons, and are situated a coss from each other, and about a mile west of the Nagpoor road. Deimey and Kankull are pleasantly situated on two table heights a mile from each other, and are merely separated by a nulla; their guries are erected on low tops adjoining each village. Deimey has two very small tanks, or koontas, close to the village with a small portion of paddy land. Kankull has no water except that obtained from a few wells for domestic purposes. The rest of the villages appertaining to the pergunna of Udloor are of very little importance, many are entirely ruined.

Thadavoy is a large-sized village with a gurry in good order, it is situated immediately below a table height covered with dry grain.

Roads, Passes and Defiles.—The military roads traversing this Circar are from Hyderabad to Nagpoor, Jalnah, Hingoley, Poona and Yelgundel, with several other trading roads. The road to Nagpoor enters the Circar about a mile south of Jeidpally, continues northward over an undulating country interspersed with jungle. It passes along the villages Palatta, Bojamagoodum, and hill pagoda on the left to Baminlapully, and crosses the Puspooerr river near the village Nagoolapully, passes through jungle for a mile, enters a patch of rice cultivation below the bank of a large tank belonging to Masaibpett, from thence it crosses a large nulla, and passes over wet cultivation to Ramtapoor, close to the foot of a hill and eastern extremity of a tank; continuing through the fields of Wodarum for a mile, it passes through thick jungle, scattered with a few villages on the right and left to Narsingpett, a large market town; leaving the town it touches the village of Sevenoor, then winds between hills, and passes west of the villages Goleepurty and Ramakapett, meets several small koontas and tanks at

Busswapoor, then to a mosque on the east and to Becanoor. Leaving the town, it keeps through jungle, and crosses a strip of paddy belonging to Untampully, leaves Maspullu two furlongs to the west, and proceeds between the tanks of Pontvorty to Nursanapully and Potha Rajumpett; leaving Rajampett and Chinna Mullareddypett about a mile to the west it crosses two large tracts of paddy to Kamareddypett, leaving this place it passes by an Edgah (a trigonometrical station) through dry grain and high ground, thence over the large tank of Yellareddypett for a mile through dry grain again, along the west foot of a detached red hill, a pagoda, called Mullumagootta, a trigonometrical station, and quits the Circar near the Moogadda in common with Kowlass and Nirmul across a large wet nulla which defines the north boundary in latitude $18^{\circ} 26'$ and longitude $78^{\circ} 18'$.

The Jalnah road, which is calculated for wheel carriage, enters the Circar in latitude $17^{\circ} 36'$ and longitude $78^{\circ} 7'$, about a mile W. of the town of Kundy, of the Golconda Circar, crosses a wet nulla and paddy cultivation to a ruined village, Pothreddypully, thence over dry grain, continues over a wide tract of wet cultivation, crossing several large nullas in its course to the river, and village Nundy, leaves it and passes through paddy and dry cultivation to the large town of Suddasheepett, where the road branches off north-west to Jalnah, and another west to Poonah, the former passes over an open undulating country cultivated with dry grain to Yempully, on the bank of the Dubba-vag, crosses it and winds over cultivated heights to Moonpully, a neat town, thence to Kummunpully, crosses two streams, and quits the boundary of the Circar in latitude $17^{\circ} 42'$ and longitude $77^{\circ} 52'$. The road to Poona quits Suddasheepett and passes through west cultivation for a short way; thence over an undulating country covered with dry cultivation to Soorawarum (the road divides here for a short way, in consequence of its swampy state during the rains); leaving the village it crosses the Dubba-vag at its junction with another stream lined with date trees, to the foot of a detached hill and pagoda to Urroor, thence winds along a rocky surface, crosses a wet nulla, and gains a gentle table height where it meets the original road to Boodawarum; leaving the village it crosses a table height, descends it and crosses two strips of paddy to Kummakoal, thence crosses two small nullas, and passing between two hills it quits the boundary near latitude $17^{\circ} 39'$ and longitude $77^{\circ} 50'$. This road is in no respect calculated for wheel carriage.

The Hingolee road enters the Circar a mile S. of Salunuggur, in latitude $17^{\circ} 41'$ and longitude $78^{\circ} 15'$, and passing by two tanks over wet cultivation crosses the Yellapoorum nulla, which is thickly lined with date; it then keeps on high ground to the village Kassulla, situated at the west extremity of a large tank, thence over a sheet of wet grain, and crosses the Nursapoor-vag to Nuvapett, a market town, leaving which it skirts along a sheet of paddy and over dry grain fields to Ponyalla mosque and village, and then meets the Manjara river, crossing which it continues over dry grain fields and nullas, and gains the village Almyapett, passes to a low hill and pagoda, then between two tanks and another pagoda and tank to Oondoal, keeps along the bank of the tank to Jageepett, passes by east of the town to the village Anunta Sagrum and tank, keeps on the bank, then over high slopes with jungle and several small koontas till it meets a nulla, which it crosses and continues through dry grain, leaving Peddapoorum half a mile to the left; it then ascends a swell to Moosullapoor, 2 furlongs west, and gains a nulla, crosses it and passes close west of Bodemetpully, and ascends a high broad swell, leaving Momdapoorum half a mile on the west; continuing along the height, it quits the Circar in latitude 18° and longitude $78^{\circ} 1'$, and half a mile south of the village Boorgapully.

The Yelgundel road may be considered as a trading road, and is in every respect calculated for wheel carriages; it enters the Circar in latitude $17^{\circ} 42'$ and longitude $78^{\circ} 35'$, close west of the ruined village Busswapoor, leaving in its course several small tanks, a fine sheet of paddy on the east and passes between the villages Kokunda, west, and Sungunnagooda, east, thence crosses a strip of wet cultivation and proceeds through jungly slopes to the village Meenachepett, quits it and keeps over swells, and crosses the Puspooerr, and proceeds through jungle to

Musjidpully, leaving the village it passes at the east end of Venkatapoorum tank, continues through jungle and meets Ramasagar, thence it passes by a tank and gains the village Cotapully, leaving which it keeps through dry grain bordering east of a sheet of paddy, and meets the large tank of Anachpoorum, keeping on its bank, and proceeds through low jungle to Muntoor, then through the town Venkatarowpett, meets the ruined village Numbla, a mosque and pagoda close east to a tank, goes over the tank and over a high slope till it meets the village Alwal, then through paddy cultivation to the Koodelly river, crossing it meets Mirrdhodi and keeps on the bank of its large tank and over undulating slopes through jungle to Dermawarum, continuing over slopes covered with jungle it meets the tank of Doompulpully and village, then winds over slopes partially covered with jungle to the village Chillapoor, passing west of it between several tanks and wet cultivation it quits the Circar in latitude $18^{\circ} 14'$ and longitude $78^{\circ} 44'$ to Madekoonta N. There are several other roads passing through the Circar, but none of them calculated for wheel carriages; they are generally frequented by the Binjaries exporting the produce of the country to the city of Hyderabad. There are no passes or defiles in the Circar deserving notice.

Rivers and Nullas.—There are three rivers in the Medduck Circar, viz., the Manjara, Puspoo and Koodelly, besides five rivulets or vags, called the Bavaney, Allera, Nundy, Dubba and Sungium, with several lesser streams. The Manjara, which is the principal of these, enters the Circar from the west in latitude $17^{\circ} 53'$ and longitude $77^{\circ} 52'$ at the junction of a nulla half a mile south of Jungala Hooserakapully, which forms the boundary common to Bidder and Kowlass. The river forms the boundary for the space of eight miles, and in quitting it descends in a S. E. direction nearly forty miles, receiving in its course several tributary streams, Sungium, Dubba, Nundy, Sungareddypett and Nukkul vags, and again forms the boundary for a short way between the Sungareddy and Nukkul vags, when it shapes its course from the junction of the latter in a northerly direction, with steep and rugged banks; on reaching Dunnawarum it bends N. E. Several large and well-cultivated villages are situated on its banks up to its junction with the Puspoo, a distance of nearly forty miles, it then takes a westerly direction, meets the Alleri-vag about 2 furlongs east to Lingalla, and proceeds west to the boundary at the junction of a small nulla, it then keeps along the boundary and quits the Circar in latitude $18^{\circ} 5'$ and longitude $78^{\circ} 6'$ about a mile east of Mullempett, making in the whole a distance of nearly 95 miles.

The Puspoo takes its rise from the large tank 2 miles north of the village Toomekey in latitude $17^{\circ} 46'$ and longitude $78^{\circ} 37'$; it runs close east of Veyloor, and continues in a westerly direction till it approaches Hoossainpoor, a ruined village, where it bends its course northward; leaving Tooprany to the west it again turns westerly and meets the Doonter-vag, at the junction of which Nagulapully is situated, it then proceeds north, winds S. W. to Melloor, receives a large nulla which issues from the Soorawarum and Ambajeeptett tanks, continues west between the villages Lingapoor and Kookanoor, and in its course is met by the Bonalla-vag; it next runs north between the Chittial and Chillypully hills, leaves the village Chittial half a mile west, and winds north-west, leaving Medduck about a mile to the north, and falls into the Manjara a mile north of Paroor.

The Koodelly takes its rise from the large tank at Chipultoorty, in the Bongherry Circar, and winds past the Hullyruzapett and Teegoola, where it crosses the trading road to Yelgundel, and enters the Circar in latitude $17^{\circ} 51'$ and longitude $78^{\circ} 48'$, winding in a northerly direction through a well-cultivated tract of paddy and dry grain for 6 miles, forms the boundary for nearly 2 miles, and continues north-westerly through an open and beautiful country, fertilizing in its course the lands of several villages, Kolgoor, Kistnapoor, Sundapoor, Sungareddypully, Alwal, Nundy, Mullooppully, Kasalabad, Roodrawarum, Moley and Chillapoor, to the junction of the Bonalla-vag, whence the river assumes the name of Koodelly; still proceeding north-westerly by the villages Yanakoorty, Bopapoor, Ramapoor and Mulka-poor, it receives the water of Beebeepett tank and meets and forms the boundary for about 2 miles, and quits the Circar in latitude $18^{\circ} 12'$ and longitude $78^{\circ} 36'$, about a mile north of Ramreddypully.

The Bavaney-vag takes its rise amongst the ridge of table hills to the north in

the Udaloor pergunna, and passing through several large tanks, descends in a south-easterly direction, and quits the Circar in latitude $18^{\circ} 18'$ and longitude $78^{\circ} 30'$, a mile east of the village Palawunsa.

The Alleri-vag takes its rise from the northern or Boorgedda ridge of hills, running in two arms north and west, which form a junction half a mile north-east of the village Posawarum, it then descends southerly a short way, then south-west, and empties itself in the Manjara 2 furlongs east of the village Lingalla.

Nundy-vag takes its rise from the table hills of Poolmudda, in the Golconda Circar, and enters the Circar about 6 furlongs north of Poolmudda, descending northward between the following villages:—Wonumpully, Kurcherla, Komanal, Mulreddygooda, Govindapoor, Mominpett, Kassalabad, Kalagoodapully, Kumballapully, Rejuntala, Garahoor, Nundy and Moobarkapoor, near the latter empties itself into the Manjara. The nullas forming the Dubba-vag take their rise from the table hills of Kotamurrpully in three branches near Pulloor, Murreepully and Kotamurrpully, and descend north-easterly through an undulating open country cultivated with dry grain to the villages Mailgerrypett and Soorawarum, on the highroad to Poona, where they join and form the Dubba; keeping the same course, it winds along the villages Unkumpully, Nagulpully and Yempully, and meets the highroad to Jalnah, thence to Yellarum; leaving Atkoor a furlong to its right, it empties itself half a mile east of the village Yaitgudda Sungium into the Manjara river. The Sungium vag enters the Circar about 9 miles west of the Manjara at the village Jonagaon, and winds along the villages Tatpully, Mansanpully, Chin Loney, Bodapully, Tukkalapully and Garlapully; a conspicuous pagoda is seen on its right bank, and Padkull on its left near its junction with the Manjara river.

Lakes, Tanks and Reservoirs.—The Circar is rather remarkable for its numerous tanks, those of the greatest magnitude are of Sungareddypett, Oondole, Anuntasagar, Beyrandibba, Peddapoorum, Sungoopett and Takimball to the west and south; those to the east belong to Tooprany, Doontee, Goodoor, Utnawarum and Nursapoor; to the north Ambajeeptt, Pothreddypett, Beebeepett, Doobac, Chittapoor, Ramareddypett and Yellareddypett; all of these have very strong banks with outlets and two or more sluices, irrigating vast tracts of cultivation, besides supplying several other villages in their neighbourhood by means of canals. Fish is procured in great quantities in certain parts of this district, and frequently carried to the larger towns for sale; they are sometimes very large and of good flavour.

Mines, Minerals and Manufactures.—Iron ore is obtained about the Yellamulladeogutt table, and on a small hill belonging to Tirmulapully, a subordinate to Murkul, situated about $2\frac{1}{2}$ miles east of the Nagpoor road and near the northern boundary of this Circar. Plain and coloured coarse cloths, cumblies, printed cloths, glass bangles, paper, jaggery, arrack (distilled from the Ellipoe flower or long-leaved Bassia), toddy, mats and wicker work, also brass utensils.

Hills and Slopes.—The hills and slopes occupy an area of 1,480 square miles; to the north and west they are seen in high and broad ridges thickly covered with jungle with several detached tops and rocks; those of the greatest magnitude are situated in the neighbourhood of Boorgida station. The Chittial hills, a high and rugged range, are situated about 4 miles south of Maiduck droog. The ridges of hills surrounding Yelmakunnee and Soolapoorum are some of them broad, and others perfect table heights; towards the south and west the country becomes open and undulating with high swells, which gradually terminate in table ridges as they advance southward.

Animals, Wild and Domestic.—Domestic animals, though in great abundance, are of a diminutive size. Sheep and goats are seen throughout the Circar in very large flocks. Tattoos and asses are also numerous, and are rendered useful in conveying the vast quantity of toddy extracted from the date from the villages to the market towns; besides these animals the buffalo is also employed for this purpose.

The tiger, bear, leopard, hyena, wolf, jackal and fox are to be seen in these jungles. The antelope, deer, wild hog and hare are in considerable numbers.

(Signed) H. MORLAND, Lieut.,
In charge Hyderabad Survey.

GEOGRAPHICAL MEMOIR OF THE EILGUNDEL CIRCAR OF THE SOOBAH OF HYDERABAD.

1. *Its Situation, Extent and Boundaries.*—The capital of the Circar bears N. 28° E. from the Mecca mosque in Hyderabad, and is distant 82½ miles. The Circar is situated between 18° 5' and 19° 5' N. latitude, and between 78° 30' and 79° 45' E. longitude, and is bounded by the following Circars:—on the N. and W. by Nandair, on the N. E. by Ramgeer, on the S. E. by Mullangoor, and on the S. W. by Maiduc. The Bejeegherry and Yelchal pergunnas, lying to the east, are entirely separated from the Circar, and are bounded to the north by the Circar of Ramgeer, to the west by that of Mullangoor, and to the south by that of Warangul.

The figure of the Circar, not including the detached portion, is an irregular parallelogram, in length from N. to S. 68 miles, and in breadth from E. to W. 48 miles, and with the detached portion, which forms an irregular parallelogram 23 miles in length from E. to W. and 10 miles in breadth, comprises an estimated area of 2,755·4 square miles, of which 1,612·9 miles are lying waste, 402·2 miles dry cultivation, 267·2 miles wet cultivation, 149·5 miles tanks, 323·6 miles hills and slopes.

2. *Divisions and their Boundaries.*—The Circar is divided into 21 pergunnas, viz., 1 Eilgundel or Avalee, 2 Anantagerce, 3 Karem, 4 Namapully, 5 Bejeegherry, 6 Korutla, 7 Nizambad, 8 Kodamialla, 9 Vempully, 10 Numbeonda, 11 Racherla, 12 Sunnigaram, 13 Yelchal, 14 Moostlapoorum, 15 Velloola, 16 Arsikota, 17 Derkondah, 18 Nundigherry, 19 Kutkoo, 20 Polass, 21 Yeldeve, each of which contains a certain number of principal villages, some of which have subordinate villages attached to them. For more particular information and for the description of boundaries see the papers called Register of Villages and Description of Boundaries.

3. *Capitals, Cusbas, Droogs, Market-places, and other considerable places.*—The principal towns or villages are Eilgundel, Yamulwadda, Korutla, Sircilla, Juctial, Gumbarowpet, and Dermapoory. These, with all that can be considered of any importance, will be found particularly described in this memoir.

MARKET VILLAGES, THE DAY OF THE MARKET, AND REMARKS.

1. Metpally	Tuesday	Considerable.
2. Roykal	Saturday	Very indifferent.
3. Korutla	Monday	Very excellent.
4. Manakoondoor	Thursday	Passable or common.
5. Jumbakoonta	Tuesday	Very poor.
6. Yellareddypett.....	Thursday	Very indifferent.
7. Sirconda	Friday	Very poor.
8. Juctial	Thursday	Very excellent.
9. Linganapett or Durmasagur	Thursday	Very poor.
10. Sircilla	Saturday	Very good.
11. Yamulwadda	Sunday	Not very excellent.

Eilgundel, the capital of the Circar, is situated on the left bank of the Manar river, and bears N. 28° E. from Hyderabad, N. minaret of the mosque on the rock N. latitude 18° 25' 21", E. longitude 79° 4' 56". This village covers 18 square furlongs, contains about 2,000 inhabitants, and 20 or 30 bazars. The fort is in form an irregular ellipse, the transverse diameter, lying N. E., is 528 yards, the conjugate 440; the entrenchments consist of a deep ditch, and rampart supported by square and round towers, on some of which near the gateway on the N. E. side old iron guns are mounted. In the centre of the fort is a perpendicular rock about 200 feet high, which is fortified, and has on its top a fine musjid and a good reservoir of water formed in a fissure of the rock. The path to ascend the rock is on the east side and very difficult. The petta is situated on the north side of the fort, and is surrounded by a mud wall which connects it to the fort; on the N. of the petta, half a mile from the rock, is an Eedgah, having two lofty minarets and a number of Moosulman tombs and graves in its vicinity.

scattered in all directions. On the S. W. of the village is a large tamarind tope and burial-ground, and on the side next the river extensive paddy cultivation which is watered by canals; the principal canal is cut from a point lying to the westward near Manbadda, distant $6\frac{1}{2}$ miles, and is about 5 feet broad. There is also a considerable quantity of paddy land and gardens lying to the west, which are watered by tanks and wells. A few coarse cloths, kumbliies, sarries and quilted counterpanes are made at this village. A market is held on Thursdays, but is thinly attended. The articles commonly exposed for sale are cloths, quilted counterpanes, rice, dry grain, a few brass utensils, and vegetables.

The fort and petta are fast falling to decay. The killadar resides at Hyderabad. The inhabitants are poor and chiefly Telinga with a complement of the lower classes and Brahmins; also a few retainers, in charge of the fort.

This was the residence of the Zemindar Konarao, who was taken by the Russell Brigade in 1819 under Major Pitman. The Zemindar at first fled to the jungles east of the Godavery, and remained at large for a short time, but afterwards gave himself up, and was kept under restraint at Hyderabad until he died. His property is confiscated, and his family perhaps extinct. This refractory Zemindar was long able to deride the efforts of the irregular troops sent against him, and plunder the surrounding country, which may be attributed to their ignorance regarding the country, for, being covered with jungles and extremely broken, it facilitates the carrying on of such depredations, and at all times facilitates the retreat of the perpetrators. The principal forts of this Zemindar were Eilgundel, Khyrumcondah and Mullialla.

Yamulwadda, a large and populous town situated on the highroad leading from Hyderabad to Juctial, $11\frac{3}{4}$ miles N. 75° W. (large N. W. pagoda spire), N. latitude $18^{\circ} 28' 5''$, E. longitude $78^{\circ} 54' 30''$. This village covers 15 square furlongs, the houses are mostly brick, and there are a number of pagodas; at one on the bund of the tank, dedicated to Rajashwardeo, an annual festival is observed, and is considered by far the most sanctified. Within the walls of this pagoda a Musulman Peer is said to be interred, and it is consequently a place to which both Musulman and Hindoo pilgrims resort. The revenue of the village, and the sum collected during the festival, which lasts four days, is reported to be four lacs of rupees. At this village are various and excellent manufactures of coarse and fine cloths, plain and checkered kumbliies, bangles, quilted counterpanes, silks, &c., the general market for which is Hyderabad. A market is held on Sundays, and a Jemadar's party of Arab mercenaries are stationed at the village for its protection. The tank, which is extensive and supplied with water from the river by a small canal, contains water throughout the year, and irrigates an extensive sheet of paddy cultivation below its bund. The inhabitants are chiefly Telinga of trading and manufacturing castes, with a few Brahmins and low-castes.

Korutla, the kusba of the pergunna of the same name, situated on a small road leading from Hyderabad to Yellagudpa, and on the left bank of a large nulla falling into the Godavery, called Pedda-vag, $3\frac{1}{4}$ miles N. 39° W. from Eilgundel (ghurry N. E. angle N. latitude $18^{\circ} 49' 12''$, E. longitude $76^{\circ} 45' 24''$). It covers 16 square furlongs and is partly surrounded by a mud wall. In the S. E. corner is the ghurry, in which the Zemindar resides. It contains about 200 bazars, at which all kinds of supplies, &c., may be procured, and a market is held on Monday, at which coarse cloths, kumbliies, &c., are exposed for sale. There are a few good tanks which contain water for six months in the year; the paddy cultivation, however, is chiefly watered by small canals cut from the nullas. At this village are 8 silk looms, 34 coarse paper manufactories, and manufactories of kumbliies, cloth, &c.

Sircilla, a large trading town situated on the left bank of the Manar river, $15\frac{1}{2}$ N. $82\frac{1}{4}^{\circ}$ W. from Eilgundel, N. latitude $18^{\circ} 23' 26''$, E. longitude $78^{\circ} 54' 30''$. The village covers 15 square furlongs, and contains a number of bazars, a small ghurry, and a pagoda, dedicated to Venketswamy. Its manufactures are coarse cloths, plain and checkered kumbliies, and paper; for these the chief market is Hyderabad. The village is surrounded by valuable paddy cultivation, which is partly watered by tanks, and partly by canals conducting water from the river.

A market is held on Saturdays, which is well attended. The inhabitants are of all castes, and there is a small party of irregular horse stationed in the fort, in which the talookdar, amil or native collector also resides.

Juktial, a large manufacturing town, $13\frac{1}{2}$ miles N. $18\frac{1}{2}^{\circ}$ W. from Eilgundel (tower over the gateway), N. latitude $18^{\circ} 48' 5''$, E. longitude $78^{\circ} 57' 8''$. This town covers a space of 15 square furlongs, contains a number of regular streets of bazars, and is famous for its manufactures of fine and coarse cloths, which are bought by the merchants of Juktial at a low price to sell at other markets, which is a profitable trade, and to secure the cloths it is usual for them to make advances of money to the manufacturers. The town is held in jaghir by the Kotwall of Hyderabad; a market is held on Thursdays, and much order and regularity is observed in its interior regulation; a nirak is established for the sale of all merchandize, &c. The kutcherry of the Polass pergunna is established in this town. On the N. W. of the village is the fort, which is an octagon, about 200 yards in diameter, having small tower bastions, with a deep broad ditch; the profile is the old profile of Vauban, with a full rivetment of masonry and many additional defects. On the N. W. side are two standing bridges, with drawbridges; there are a few cannon on the ramparts.

This may be considered a strong permanent field fort, and is said to have been built about 70 years ago by a Musulman named Dum Sahib, who had a French engineer under him; all the walls are of substantial material, the rivetment stone and chunam, the parapet wall brick and chunam, the counterscarp about 14 or 15 feet in height, the escarp from 31 to 35 feet. It is garrisoned by a miserable-looking squad of 15 or 20 men clad in red jackets, and the whole a sad imitation of a European fort.

On the north of the fort is a large tank, an extensive sheet of paddy cultivation, and several large tamarind topes.

Gumberowpet, a large village and cusba of the Racherla pergunna, 31 miles E. 76° W. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 18' 55''$, E. longitude $78^{\circ} 37'$. This village covers 9 square furlongs, has a large ghurry and a large and respectable population. Some are employed in manufacturing and dyeing coarse and fine cloths, quilted counterpanes and kumbliies, which are sold at Eilgundel, and others in the cultivation of the lands, which are extensive.

There are 10 good tanks, two musjids, tamarind and palmyra topes, a few bazars, and a pagoda dedicated to Ramaswamy, at which a feast is held annually for three days.

Dermapoory, a large Brahmin village, situated on the right bank of the Godavery, $36\frac{1}{2}$ miles N. 6° E. from Eilgundel, (south pagoda) N. latitude $18^{\circ} 56' 59''$, E. longitude $79^{\circ} 8' 15''$; this village covers 9 square furlongs, is the largest in the pergunna, and, being the residence of the Zemindar, may be considered the capital. The revenue amounts to Rs. 1,200, and has been given by the Government to Brahmins for repairs, &c., of the several pagodas in the village. The principal pagoda is dedicated to Nursimloo, at which a festival is kept annually for three days, and the number of pilgrims is very considerable. There are few bazars in the village, considering its size. The houses are chiefly tiled, and two stories high, the inhabitants opulent and respectable; there are no tanks and the cultivation is entirely dry grain.

Kutcoor, the cusba of the pergunna of the same name, situated on the right bank of the Manar river $19\frac{1}{2}$ miles S. $74\frac{1}{2}^{\circ}$ W. from Eilgundel (S. W. angle of the fort), N. latitude $18^{\circ} 20' 55''$, E. longitude $78^{\circ} 48'$. This village covers 4 square furlongs, and in common with the whole in the pergunna is in a dilapidated condition. The highroad from Hyderabad to Nagpoor via Juktial passes close to the west of the village, and it contains a small ghurry, and a number of bazars, at which the common articles of daily consumption, &c., are vended. There is a beautiful pagoda in the centre of the village, dedicated to Gopalswamy, which has probably induced a number of Brahmins to reside at the village. The population, however, is mixed, and may be estimated at about 600 souls. The paddy lands are considerable, they are watered by tanks, but chiefly by water conducted from

the river through small canals. There are a great number of palmyra trees bordering upon the river and the lands in its vicinity.

Cheerlavuncha, a large and populous village on the right bank of the Manar river, $8\frac{1}{2}$ miles S. 75° W. from Eilgundel (pagoda), north latitude $18^{\circ} 23' 28''$, east longitude $78^{\circ} 57' 22''$. The village covers an extent of 9 square furlongs, and is surrounded by a decayed mud wall and ditch. In the village there is a small mud ghurry, a few bazars, and a famous pagoda, dedicated to Gopalswamy, at which an annual festival is held. There are a few tanks belonging to the village, but the extensive sheet of paddy cultivation is watered from the river by a small canal.

Lingapooram, a small market village (N. E. angle of ghurry) [?] north 76° W. of Velloola, N. latitude $18^{\circ} 49' 20''$, E. longitude $78^{\circ} 38' 6''$. This village covers 4 square furlongs. There is a high ghurry in which the Zemindar resides, and two streets of bazars containing about 30 shops. A market is held on Tuesdays, at which common supplies, &c., may be purchased. There is also a large tank on the W. of the village, which contains water for nine months in the year, extensive paddy cultivation, palmyra and tamarind topes, a plantation of orange trees and a vineyard.

Velloola, the cusba of the pergunna of the same name, $38\frac{1}{2}$ miles N. 46° W. from Eilgundel (highest part on the fortified hill), N. latitude $18^{\circ} 49' 1''$, E. longitude $78^{\circ} 39' 16''$. This village covers 9 square furlongs, but is now in a ruined state; also the entrenchments on the hill have fallen to decay. There is a large tank on the S. of the village, which contains water throughout the year, a considerable patch of wet cultivation, and a number of tamarind topes. The village contains but a few bazars, and the Zemindar, who formerly resided at the village, has removed to Lingapoor, and the weekly market is now held at that village.

Vempully, the cusba of the pergunna of the same name, $41\frac{1}{2}$ miles N. $24\frac{1}{2}^{\circ}$ W. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 58' 37''$, E. longitude $78^{\circ} 49' 28''$. This village is almost entirely deserted, and the whole pergunna is in a ruined state. The kutcherry is held at Vebooramputnum.

Vebooramputnum, a small village at which the kutcherry of the Vempully pergunna is held, $44\frac{1}{2}$ miles N. 42° W. from Eilgundel (N. E. angle of the small ghurry), N. latitude $18^{\circ} 54' 30''$, E. longitude $78^{\circ} 37' 28''$. This village has a square ghurry in its centre, and there is a considerable quantity of paddy cultivation belonging to the village.

Metpully, a populous market village, covering 6 square furlongs, 40 miles N. 43° W. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 51' 28''$, E. longitude $78^{\circ} 40' 19''$. A considerable quantity of coarse paper is manufactured at this village and sent to Hyderabad. The market is held on Tuesdays.

Roykul, a populous market village, $36\frac{1}{2}$ miles N. 26° W. from Eilgundel (S. W. angle of the ghurry), N. latitude $18^{\circ} 54' 17''$, E. longitude $78^{\circ} 50' 42''$. This village covers about 6 square furlongs, has a large tank on its W., which contains water for nine months in the year, and extensive cultivation both of paddy and dry grain, palmyra and tamarind topes, &c. The market is held on Saturdays.

Mullapooram, a small village $43\frac{1}{2}$ miles N. $33\frac{3}{4}^{\circ}$ W. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 58' 24''$, E. longitude $78^{\circ} 44' 47''$. This village is partly surrounded by a wall, has a mud ghurry, several tanks on its W. and N., extensive paddy cultivation, palmyra and tamarind topes, &c. It is situated on a small Brinjary road leading to one of the principal ferries of the Godavery at Vaulgonda, and is surrounded by high hills and jungle. There is a street of bazars, and a pagoda on the bluff rock to the N. W., dedicated to Somani, at which an annual festival is held.*

Jylapooram, a small village, covers 4 square furlongs (N. E. angle of the ghurry), $3\frac{1}{4}$ miles N. 15° W. from Korutla, and on the Brinjary road leading to one of the principal ferries of the Godavery at Vaulgonda. This village has a large tank on its N. W., which is filled by a canal from the Pedda-vag nullah and contains water nearly throughout the year, extensive paddy cultivation, tamarind and palmyra topes. The trigonometrical station is on the highest part of the hill to the N. E.

Polass, the cusba of the pergunna of the same name, $28\frac{1}{2}$ miles N. 11° W. from Eilgundel (N. E. angle of the petta wall), N. latitude $18^{\circ} 50' 2''$, E. longitude $79^{\circ} 0' 6''$. This village covers about 4 square furlongs, and is surrounded by an old wall and ditch. It is the residence of the Zemindar, but there are neither manufactures nor trades; there are several tanks belonging to the village, and extensive cultivated lands both of dry grain and paddy. The road from Juktial to Dermapoory passes through the village; there is but one bazaar; the village is agrarum.

Tongoor, the cusba of the Ariskota pergunna, is a small village containing about 50 houses and two bazars or shops, $40\frac{3}{4}$ miles N. $4\frac{1}{2}^{\circ}$ W. from Eilgundel, N. latitude $19^{\circ} 1' 2''$, E. longitude $79^{\circ} 2' 13''$. This village has two tanks and extensive wet cultivation, and is at present the residence of the Naib of the pergunna.

Narella, a small village among the hills, and on the small road leading from Juktial to Dermapoory. It contains about 50 houses, and two bazars, and is situated $11\frac{1}{4}$ miles N. $42\frac{1}{2}^{\circ}$ E. from Juktial.

Deeconda, the capital of the pergunna, is ruined, and is said to have been so for some centuries. The trigonometrical station is on the summit of the table, in N. latitude $18^{\circ} 44' 43''$, E. longitude $79^{\circ} 10' 28\frac{1}{2}''$. Two ruined walls are the only remains of the village.

Rajawaram, a large straggling village on the right bank of the Godavery, $38\frac{7}{8}$ miles E. $4\frac{1}{4}^{\circ}$ E. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 59' 23''$, E. longitude $79^{\circ} 7' 30''$. This village covers 9 square furlongs and contains 50 or 60 houses and 6 bazars.

Kumbumpully, or Stumbumpully, a small village situated on a height of the right bank of the Godavery, about $1\frac{1}{2}$ miles from the river, 31 miles N. $13\frac{1}{4}^{\circ}$ E. from Eilgundel ghurry, N. latitude $18^{\circ} 51' 57''$, E. longitude $79^{\circ} 11' 36''$; on the S. W. of the village is a large tank, and to N. and E. extensive paddy lands which are watered by tanks, and by canals cut from a nulla on the S.

Ram-Muddagoo, the cusba of the Nundigherry pergunna, $11\frac{1}{8}$ miles N. $7\frac{1}{2}^{\circ}$ E. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 35' 1''$, E. longitude $79^{\circ} 0' 13''$. The petta covers 4 square furlongs, and on its south is a strong stone ghurry 200 yards square, in which the naib of the pergunna resides and keeps his kutcherry. The station on the hill S. E. is in N. latitude $18^{\circ} 34' 41''$, E. longitude $79^{\circ} 7' 3''$.

Manakoondoor, a large village 93 miles S. 83° N. from Eilgundel (S. W. angle of the ghurry), N. latitude $18^{\circ} 24' 13''$, E. longitude $79^{\circ} 13' 22''$. This village covers 8 square furlongs, but does not contain more than 100 houses, is surrounded by a ditch, and wall now in ruins, and has a large stone ghurry, two pagodas on the south of the ghurry, dedicated to Khundoba, a large tank which contains water for nine months in the year, and very extensive paddy cultivation, both above and below the tank; a market is held on Thursdays, and there are a few bazars, at which coarse cloths and black salt are sold. The Deyspandia resides in the ghurry.

Kurreemnuggur, a populous village on the left bank of the Manar river, covering 4 square furlongs (fort) $6\frac{3}{8}$ miles N. $84\frac{1}{4}^{\circ}$ E. from Eilgundel, N. latitude $18^{\circ} 25' 56''$, E. longitude $79^{\circ} 10' 48''$. A few coarse cloths and goat are manufactured at this village. The whole village is falling to decay.

Moostlapooram, a large village, and capital of the pergunna of the same name, $10\frac{1}{8}$ miles S. 50° E. from Eilgundel, N. latitude $18^{\circ} 19' 34''$, E. longitude $79^{\circ} 12' 5''$. This village covers 4 square furlongs, has a tank on its N. and extensive paddy cultivation. There are 2 or 3 bazars, a pagoda and a mosque. This village is in a state of decay.

Anantagherry, the capital of the pergunna of the same name, is situated about one mile S. W. of the station and is ruined.

Jillella, a trading village, $18\frac{1}{8}$ miles S. $57\frac{1}{2}^{\circ}$ W. from Eilgundel (N. E. angle of the ghurry) N. latitude $18^{\circ} 16' 31''$, E. longitude $78^{\circ} 50' 59''$. This village covers 9 square furlongs, and has a remarkably strong-built ghurry, a number of tanks, extensive paddy cultivation, and palmyra topes. The village is in charge of a Desmook, and a small quantity of coarse paper is manufactured.

Namapully, the cusba of the pergunna of the same name, $11\frac{3}{8}$ miles N. $82\frac{1}{2}^{\circ}$ W. from Eilgundel. On the rock about half a mile to its south is a small pagoda, dedicated to Lutchmee. Narsinloo station on the rock N. latitude $18^{\circ} 26' 33''$, E. longitude $78^{\circ} 54' 32''$.

Korem, the cusba of the pergunna of the same name, $18\frac{1}{4}$ miles N. $33\frac{3}{4}^{\circ}$ W. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 32' 4''$, E. longitude $78^{\circ} 57' 18''$. This village covers 4 square furlongs, but is in a state of decay. The paddy lands and palmyra topes are extensive. The small road from Hyderabad to Juktial passes by the village.

Numlekonda, the cusba of the pergunna of the same name, $18\frac{1}{4}$ miles N. $33\frac{3}{4}^{\circ}$ W. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 35' 48''$, E. longitude $79^{\circ} 0' 26''$. This village covers 4 square furlongs. There is an old ruined fort on the hill situated to its N.

Illasaggrum, a flourishing village $6\frac{3}{8}$ miles N. $55\frac{1}{2}^{\circ}$ W. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 28' 27''$, E. longitude $79^{\circ} 0' 16''$. This village covers 5 square furlongs. There is a large strong ghurry, a large tank, and extensive paddy lands on the west of the village.

Kodamialla, a large village, and capital of the pergunna of the same name, $16\frac{3}{4}$ miles N. 33° W. from Eilgundel, and on the road from Hyderabad to Juktial; (S. E. angle of the ghurry) N. latitude $18^{\circ} 37' 55''$, E. longitude $78^{\circ} 56' 32''$. This village covers 6 square furlongs, and is situated on the right bank of the Goondairoo nulla. There is a ghurry, two large tanks, and a small quantity of paddy cultivation.

Rainkoontah, a small flourishing village, $11\frac{1}{8}$ miles S. $34\frac{3}{4}^{\circ}$ E. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 17' 22''$, E. longitude $79^{\circ} 13' 19''$. This village covers 4 square furlongs, has a tank, and extensive paddy fields. The tank is filled by a canal from the Mohedamoda nulla. The village contains a few bazars.

Beejeegherry, or Veejeegherry, the capital of the pergunna of the same name, $\frac{9}{16}$ mile N. 13° E. of the trigonometrical station, which is in N. latitude $18^{\circ} 20' 20''$, E. longitude $79^{\circ} 32' 82''$. This village covers 3 square furlongs, but is deserted, and only a heap of ruins; a few of the remaining inhabitants are weavers, and manufacture coarse and fine cloths, which they dye with a very peculiar earth colour. The trigonometrical point is in the middle of an old droog, and the two hills are connected by very high mounds of earth, one at each gorge, to form a tank, which is at present overgrown with jungle, and the retreat of bears and royal tigers, &c. About one mile S. W. of the village there is a fine large stone mosque, surrounded by tamarind trees, and two domes, the largest of which is the place of sepulchre of the Owlia, or saint, Unkashaw, to which a pilgrimage takes place annually, and a small quantity of land has been presented for the repairs, &c.

Jumbakoonta, a large market village, at present the cusba of the Beejeegherry pergunna, $28\frac{1}{2}$ miles S. $72\frac{1}{2}^{\circ}$ E. from Eilgundel (N. E. angle of the ghurry), N. latitude $18^{\circ} 17' 47''$, E. longitude $79^{\circ} 29' 42''$. This village covers $6\frac{1}{2}$ square furlongs, has two large tanks, a ghurry, extensive rice grounds, and palmyra topes, and there are a few bazars. The market is held on Tuesdays. It is the residence of the Desmook.

Ainunka, a large village 25 miles S. 80° E. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 21' 14''$, E. longitude $79^{\circ} 27' 39''$. This village covers 6 square furlongs, is the residence of a Desmook, and has two large pagodas, at one of which an annual feast takes place in the month of Chaitra.

Cheerkoor, a large and flourishing village, covers 5 square furlongs, and has a mud ghurry, two large tanks, extensive rice lands, and two remarkably neat pagodas, on the E. of the village, (S. pagoda) 30 miles S. $66\frac{1}{2}^{\circ}$ E. from Eilgundel, N. latitude $18^{\circ} 14' 27''$, E. longitude $79^{\circ} 30''$.

Kondapac, a village on the right bank of the Manar river, 30 miles S. 65° E. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 24' 2''$, E. longitude $79^{\circ} 29' 6''$. This village covers 4 square furlongs, but is in a ruined state. The extensive rice lands are watered by a canal cut from the river.

Rungapoor, once a large but now decayed village, 43 miles S. 77° E. from Eilgundel, (S. E. angle of the ghurry) N. latitude $18^{\circ} 16' 8''$, E. longitude $79^{\circ} 43' 34''$.

Sirconda, a large market village, $32\frac{1}{2}$ miles N. 45° W., from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 45' 51''$, E. longitude $78^{\circ} 50' 25''$. The petta is large and irregular and covers $6\frac{1}{2}$ square furlongs. The ghurry, situated on a low hill, is the residence of the Desmook, and is a remarkably neat building. To this village belong extensive and well-cultivated lands of rice and dry grain, and a great quantity of date and palmyra trees. The market is held on Fridays.

Nizambad, a small village, the capital of the pergunna of the same name, $20\frac{1}{2}$ miles N. 78° W. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 29' 7''$, E. longitude $78^{\circ} 46' 29''$. This village covers 8 square furlongs, but is thinly inhabited, and only contains 2 or 3 bazars.

Konarowpett, a large and populous village, S. $22\frac{1}{2}$ miles N. 80° W. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 29' 8''$, E. longitude $78^{\circ} 43' 54''$. This village covers 4 square furlongs, has extensive rice cultivation, and several large tanks, which retain water throughout the year.

Mullialla, a large and populous village, covering 10 square furlongs, 21 miles N. 61° W. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 35' 34''$, E. longitude $78^{\circ} 48' 4''$. The stone ghurry, in which the Desmook resides, is a remarkably neat building, and is surrounded by a deep ditch. There are two large lanks. The village is falling to decay.

Linganapett, a large village surrounded by a mud wall, and having a neat stone ghurry, (S. W. angle of the ghurry) 30 miles S. 73° W. from Eilgundel, N. latitude $18^{\circ} 17' 17''$, N. longitude $78^{\circ} 38' 47''$. This village covers 6 square furlongs, but is thinly populated and contains only a few bazars. It is the residence of a Desmooknee, and a market is held on Thursdays at Darmasagur, one of its subordinate villages, situated one mile N. 65° W. from the ghurry.

Yellareddypett, a large village, 26 miles S. 82° W. from Eilgundel, (N. E. angle of the ghurry) N. latitude $18^{\circ} 22' 1''$, E. longitude $78^{\circ} 41' 21''$; 3 miles on the west of the village is a remarkably fine tank, called Linga Samoodrum, by which the extensive rice land on the south of the village is watered. The village covers $5\frac{1}{4}$ square furlongs, and is mortgaged to Kissen Dass, a native banker and agent; a market is held once a week but is of a very indifferent kind.

Racherla, the capital of the pergunna, situated one mile W. from Yellareddypett, is ruined.

Bavapett, a large village, half a mile N. 54° W. from Eilgundel. This village covers 6 square furlongs, and contains a line of bazars. The boorj in the centre of the village is in N. latitude $18^{\circ} 26' 24''$, E. longitude $79^{\circ} 3' 32''$.

Forts.—The only forts are those of Juktial and Eilgundel, both of which are described with the villages.

Droogs.—There are two droogs, Khyrumcondah and Anantagherry; both are ruined, and have trigonometrical stations in them. The latter is a principal station, the former only an intersected point. Khyrumcondah was destroyed by the order of Government.

4. *Villages and Towns.*—For the actual position of every village see the Register of Villages.

5. *Rivers and Anicuts on them, and Canals.*—There are two rivers, the Godavery, more commonly called about this part the Gunga, which forms the northern boundary of the Circar, and the Manar.

The Godavery enters the Circar at a point on the right bank in N. latitude $18^{\circ} 57' 26''$, and E. longitude $71^{\circ} 31' 10''$, at which point it is 700 yards broad, the banks high, the bed sandy, and covered with stunted bushes and rocks. It takes a north-easterly course for 2 miles to the Chintulchanda ferry, then turns south-easterly $2\frac{1}{2}$ miles to the eastern extremity of a small island, and winds north-north-easterly to the east end of another sandy island distant 3 miles, then runs easterly and turns a little S. to a rock at the E. end of a long sandy island distant $4\frac{1}{6}$ miles. About this part the river is one mile broad, and forms a number of islands, some of which are cultivated, and at Yenkatapoor, distant

1½ miles north-westerly, breaks its banks, and flowing north-easterly forms an island 5¼ miles in length and one mile in breadth, on which are situated Bajavan, Moolay, Badanakoosty and other villages of the Nandair Circar. From the rock mentioned the Godavery takes a north-easterly course for 6 miles to a rock at the W. end of a long island, and contracts its breadth to a quarter-mile, runs easterly 4¾ miles to another rock on a small island, and gradually spreads to half a mile in breadth, then turns north-easterly 1¼ miles to a rock on an island, spreads to the breadth of 1½ miles, forms several small islands, and continues its course 2½ miles to a point on the left bank of the Pedda-vag nulla, which falls in from the S., N. latitude 19° 2' 20", E. longitude 78° 51' 11". From the Pedda-vag the Godavery runs 3 miles north-easterly to a point on the left bank where a nulla falls in from the north-west, then flows S. E. by E. to (the Mogoodda) the junction of the boundaries of the Eilgundel, Rangeer, and Nandair Circars, situated on the left bank of the river, N. latitude 19° 2' 10", E. longitude 78° 57' 16", thence winding north-easterly 3¼ miles, easterly 5¼ miles, south-easterly 4 miles, south-south-easterly 6½ miles, and south-easterly 7¼ miles, finally leaves the Circar at a point on the right bank N. latitude 18° 52' 1", E. longitude 79° 13' 24". The average breadth of the river throughout these courses is half a mile, the bed extremely rocky and the banks very high, particularly the right bank of the reach bearing N. W. from Rangasagur, opposite to the Mogoodda, and may be estimated at near 100 feet. The bed of the western portion is sandy, and there are a number of rocks scattered about; the banks are high, but seldom exceed 30 or 50 feet. The stream of the Godavery is rapid, and the freshes come down about the month of June, when it fills from bank to bank, after which the waters gradually subside or run off, leaving a stream in some places 14 feet deep, but in others fordable. There are no water works upon the river, and the only canal formed for watering lands upon its banks is at Yamadakoorchy; neither are there fishermen, and it is probable there are but few fish; alligators, however, are numerous. The following are the chief ferries and fords:—1, Chin-chulchanda ferry, not fordable in April; bed large stones and sandy; one round basket boat; 2, a ferry 1¼ miles E. of Komelkoti; one boat, bed sandy, not fordable in April; 3, Badanakoorty ferry; one boat, fordable in the beginning of April; 4, Bonapilly ferry; two ferries, one basket boat; not fordable in April; 5, Vaulgonda or Yellagudpa ferry; bed sandy and large stones; three basket boats; in April there is about 10 feet of water; and a number of alligators.

Fords.—1, Komapoor or Botapoor ford; 2, Arupully or Moodapooram ford; 3, Rajawaram or Darenka ford; these are fordable in the month of May, the water is then about 3 feet deep, the bed of the river is extremely rocky, so much so that it is difficult to find a path or passage between the large stones; the banks are from 15 to 20 feet high.

Munar.—This river rises in the Bhongeer Circar in about latitude 17° 49', longitude 78° 50', and flowing straight through the eastern portion of the Maiduck Circar enters the Eilgundel Circar at a point on the right bank in north latitude 18° 13' 22", and east longitude 78° 36' 27", and thence flows northerly to a small pagoda on the left bank, where another large nulla falls in from the north-west, called Ramadra-vag, then winds north-easterly 3½ miles, northerly 1¾ miles, and easterly 3¾ miles, to the village of Singaram, ¾ mile north of which a large nulla falls in from Singaram. Thence the river flows north-north-easterly 1½ miles, then turns easterly 1¼ miles at a point where a large nulla falls in on the left bank from the south-west, and ¾ mile further on comes to a small island, where another large nulla falls in on the left bank, then runs south-easterly one mile, and is met by a nulla called Nukka-vag, coming from the south, which has several branches, takes a south-easterly course for 5¼ miles, passes the village of Kutkoor on its right bank, and between the villages of Sircillah and Tagullapully, and, gradually spreading, forms a number of small sandy islands, and comes to a point where a large nulla called Sundra-vag falls in from the S. This nulla rises at Mulyala, 13½ miles south, and comes down by the villages of Jillella and Baddenpully, which are on its right and left banks.

The Munar, from the junction of the Sundra-vag, continues its south-easterly course 1¾ miles, when two small nullahs fall in, one on the left bank from the

N. W., and one on the right bank coming from the south. The river at this point is not 100 yards wide ; continuing its course for two and a half miles it gradually spreads, and forms a number of small sandy islands, then takes a south-easterly course one and a quarter miles to the west end of a small island, winds north-easterly three miles, and south-easterly one and a half miles to a point on the left bank where one of the principal branches, called Gunjah-vag, falls in from the N. W., N. latitude $18^{\circ} 24'$, E. longitude $78^{\circ} 58' 4''$, thence continues its course easterly five miles, veering first a little south and then a little north, to a point on the left bank where a large nullah falls in, which rises at a point distant 16 miles S. S. W., and comes down by the villages of Korem, Boenpully, Illasagram, and Nursingapoor, which are situated on its left bank, thence continues its course easterly one mile to where a large nullah falls in on the right bank. This nullah rises at a point about 14 miles S. W. and comes down by the villages of Sirconda, Annantawaram, Illundakoonta, Wontudpulla, and Nursakhanpett. The river continuing its course $1\frac{1}{2}$ miles, and veering a little north, another large nullah falls in on the right bank,—the principal source is about 20 miles S. W. in the jungle on the W. of the Annantagherry range of hills, it has a number of branches, and issuing from the hills comes down by Raipac, Bagunpett, Wodeloor, and the Gunarum tank ; from the point last mentioned the Munar continues its course north-easterly 2 miles, easterly $1\frac{1}{4}$ miles, south-south-easterly $1\frac{1}{2}$ miles, easterly 1 mile, south-south-easterly $1\frac{1}{4}$ miles, to a point on the right bank where one of the principal branches falls in, called Mohedomeda, N. latitude $18^{\circ} 23' 36''$, E. longitude $79^{\circ} 9' 52''$. From the last-mentioned point it continues its course south-easterly $1\frac{1}{4}$ miles, northerly $1\frac{1}{2}$ miles, north-easterly 6 miles, to a point on the left bank where the Goondairoo nullah falls in, which is one of the principal branches, N. latitude $18^{\circ} 57' 3''$, E. longitude $79^{\circ} 16' 34''$, thence continues its course easterly $\frac{3}{4}$ mile, north-north-easterly $1\frac{1}{4}$ miles, where a small nullah falls in on the W. bank, which rises at about $12\frac{1}{2}$ miles south-westerly, and comes down by the villages of Goomolapoor, Chopadundi, Veedrookutta, Cherla, Bootkoor, and Gurrapully, thence continues its course north-easterly $2\frac{3}{4}$ miles, easterly $1\frac{1}{2}$ miles, and leaves the Circar at a point on the left bank, near Guttapully, where a small nullah falls in, N. latitude $18^{\circ} 28' 59''$, E. longitude $79^{\circ} 21' 35''$, crosses the S. W. extremity of the Ramgeer Circar, re-enters the Circar at a point on the right bank N. latitude $18^{\circ} 24' 43''$, E. longitude $79^{\circ} 28' 14''$, and flows south-easterly $3\frac{1}{4}$ miles to a point on the right bank where a large nullah falls in, called Kaysaiputnum-vag, N. latitude $18^{\circ} 23' 4''$, E. longitude $79^{\circ} 30' 46''$. This nullah takes its rise on the south of Kaysaiputnum, in the Mullangoor Circar, about 24 miles S. W., enters the Circar in N. latitude $18^{\circ} 20' 58''$, E. longitude $79^{\circ} 26' 9''$, and taking a south-easterly course comes down by the villages of Ainunka and Pothareddypully. The Munar, from the point last mentioned, continues its course easterly $3\frac{3}{4}$ miles, and north-easterly $4\frac{3}{4}$ miles, to a point on the right bank where a large nullah, called Sally-vag, falls in, N. latitude $18^{\circ} 26' 30''$, E. longitude $79^{\circ} 37' 26''$, thence takes a northerly course for $1\frac{1}{2}$ miles, and finally leaves the Circar at a point in the centre of the river, N. latitude $18^{\circ} 27' 46''$, E. longitude $79^{\circ} 37' 30''$. The Munar on entering the Circar is only 120 yards wide, but on its course it is met by a number of considerable streams, and gradually widens ; at Eilgundel it is 400 yards wide ; at the point where it leaves the Circar it is $\frac{1}{2}$ mile. The average breadth of that part forming the northern boundary of the Beejeegherry pergunna is $\frac{1}{4}$ mile, and at the point where it finally leaves the Circar it is 350 yards, but the breadth constantly varies ; in some places it contracts, and in others spreads at once to double its mean breadth, and forms a number of small islands. It is characterized throughout as a very sandy river, having in some places no banks, and in no place a bank higher than 10 or 12 feet. Its bed is overgrown with stunted bushes which form a retreat for wild beasts, and towards the eastern part it is dangerous to approach it on account of the number of royal tigers. The freshes come down about June, and the water gradually subsides, leaving no pools. In November there is only one or two feet of water, forming a narrow stream, and in the hot season it is almost completely dry. There are no

anicut. At the following places are canals, 5 or 6 feet broad, which lead off water for irrigating lands on its banks, &c. :—Sircilla, Katcoor, Manbudda and Eilgundel.

Pedda-vag.—The principal stream rises at the Munnarler tank, on the high table-land about $2\frac{1}{2}$ miles E. of the Munnarler station, thence takes a northerly course $7\frac{1}{2}$ miles to Konapoor, at which place it is 100 yards wide and has very high banks, continues the course $9\frac{1}{2}$ miles, and passes by the villages of Atkoor and Peddapoorum to a point near Chintalpett where a large nullah falls in from the S. W. Its principal source is at a tank on the S. W. of Chittapoorum, distant 8 miles, and it comes down passing $1\frac{1}{2}$ mile E. of Velloolla. Flowing north-easterly $2\frac{1}{2}$ miles, easterly $3\frac{3}{4}$ miles, from the point mentioned, and passing the villages of Chittapoorum and Dermarum, the Pedda-vag is met by a large stream coming from the south, the principal source of which is at a tank 20 miles S. 10° W. on the S. W. of Roodrangee, and it comes down northerly $7\frac{1}{4}$ miles by Kullecoat to Tandaralla, $1\frac{1}{4}$ miles to the N. of which it is met by a small stream from the S. E., it then continues its course northerly $3\frac{1}{2}$ miles by Dooloor to Takkalapully, where it is met by a stream which rises at Govindaram tank, distant $8\frac{1}{4}$ miles south-easterly, and comes down by Gumbeerpoor and Bomana, it thence continues its course 3 miles northerly to Sungaram, where another small stream falls in from the S. E., then takes a south-easterly course for $6\frac{1}{2}$ miles, and passes by Korutla and Kulloor to the point before mentioned. This latter course is very serpentine. The Pedda-vag then takes a north-easterly course $1\frac{3}{4}$ miles to a point whence a large nullah falls in, which rises 16 miles S. 20° E., and comes down by Ragojeeptt, Bemawaram, Kondapoor, Moanraopett, Chin Metpully, and Pedemuddagoo, thence takes a N. course, at $3\frac{1}{2}$ miles is met by a nullah falling in from the S. E., and 1 mile further on falls into the Godavery. These last-mentioned nullahs take their rise at points estimated about 8 miles S. E. The first comes down by Poormulla and Koykull, the second by Aloor, Bopaleepoorum, and Moolapully, and the third by Dirmiahpett and Vustapooram, and have several branches. The bed of the Pedda-vag is sandy; it has steep banks, and is 200 yards wide where it falls into the Godavery. There are no anicuts on the nullah; Korutla and Jylapoorum are the only places where small canals are cut to water lands on its banks, and it only contains water during the freshes. In the hot season it is almost perfectly dry.

Gunjah-vag.—The principal source of this nullah is in the hills near Pundary-muddagoo W. of Jingull in N. latitude $18^{\circ} 32' 20''$, E. longitude $78^{\circ} 34' 50''$. It thence flows easterly 4 miles and is met by a small nullah from the N., turns south-easterly 3 miles, and is met by a small nullah, the source of which is about 5 miles S. W., runs north-easterly $2\frac{1}{2}$ miles to the village of Ootmulla, where a small stream falls in from the N.; then runs south-easterly $3\frac{3}{4}$ miles to the village of Yenketrowpett, where a large nullah falls in on the right bank, which rises about 15 miles S. 70° W. and comes down by Verrapoorum, Eklaspoorum and Konarowpett. From Yenketrowpett the Gunjah-vag continues its course south-easterly $2\frac{3}{4}$ miles to Mandapully, thence continues its course southerly $\frac{1}{2}$ mile, north-easterly $\frac{1}{2}$ mile, easterly $1\frac{1}{4}$ miles, to Bolarum, and turns south-south-easterly $\frac{1}{2}$ mile to Lingumpully, then runs north-easterly $\frac{1}{2}$ mile to a point where a large nullah falls in from the N. W. Its principal source is at the Sunnagool tank, and it comes down by the villages of Bundapully, Ingulla, and Almaspett; at the latter village a large nullah falls in from the Mullailla tanks. The Gunjah-vag from the junction last mentioned takes a south-easterly course $4\frac{3}{4}$ miles by Mullaram, Jeawaram to Yamulwadda, takes a winding course easterly $2\frac{1}{4}$ miles to Sunkapully, where a nullah falls in from the N. which comes down by the villages of Nooklamurry, Chukkapully and Satarazpully, thence takes a winding course easterly $\frac{1}{2}$ mile, southerly one mile, south-easterly 1 mile, south-south-westerly $\frac{1}{2}$ mile, northerly 2 miles, passes by the villages of Venkapully, Shabaspully, Koodrapak, and falls into the Munnar. This is a very sandy nullah, its banks 10 or 12 feet high, but not rocky, and contains water but for a few months during the rains. There is a small canal at Lingumpully, and 1 mile S. of Mullaram there is a dam of earth thrown across the nullah, and a small canal leads off water to the Yamulwadda tank.

Mohedomada.—This nullah rises in the Bhongeer Circar, and enters the Eilgundel Circar at a point in N. latitude $18^{\circ} 5' 15''$, E. longitude $79^{\circ} 6' 32''$, thence flows northerly 5 miles and passes through some low hills, turns north-easterly 3 miles, and is met by a large nullah coming from the Sunigaram tank, continues its course 6 miles, passes the village Gogelapoorum to Thorongpully, turns easterly $1\frac{1}{2}$ miles, and is met by a large nullah which comes from the Hussainabad tank, runs easterly a short distance, and turns northerly $8\frac{1}{2}$ miles, and falls into the Munar. This is a very sandy nullah, the bed is overgrown with bushes, and the banks low. The only canal for irrigating lands on its banks is at Rainkoonta.

Goondairoo.—This nullah rises at the Narrella tank, $2\frac{1}{2}$ miles N. of Konopoorum station, which is in N. latitude $18^{\circ} 40' 56''$, E. longitude $78^{\circ} 52' 15''$, flows north-easterly 3 miles, then south-easterly 3 miles to Kodamaila, and thence easterly 4 miles to Padoor, flows south-easterly 7 miles by Nimlikoonda to Ram Muddagoo, runs south-south-easterly 3 miles to Motay, and thence $2\frac{3}{4}$ miles to Wonawarum, thence easterly 2 miles to Nugganoor, thence south-easterly $1\frac{1}{2}$ miles, where a nullah falls in from the west, thence winds south-easterly and falls into the Munar, passing the villages of Vullumpad, Irkoola and Doorshed. The only canal for watering paddy lands on this nullah is at the last-mentioned village. It is a broad sandy nullah, with steep banks.

Sully-vag.—This nullah enters the Circar in N. latitude $18^{\circ} 16' 33''$, E. longitude $79^{\circ} 44' 21''$, and flows north-westerly $5\frac{1}{2}$ miles by Madermetta and Unhashapoor to a point where it is met by a large stream, the principal branch of which comes upon the boundary of the Circar in N. latitude $18^{\circ} 15' 46''$, E. longitude $79^{\circ} 39' 8''$, and flowing north-easterly, and veering northerly at the distance of $4\frac{1}{2}$ miles is met by a large nullah coming from the S. W. which rises near Bornapilly S. 64° W., 19 miles, comes down by Jupak, Chokoor, Mudpully, Paterty, Motapully, Yamullapully and Godipad, crosses the boundary six times in its course; runs north-easterly $1\frac{1}{2}$ miles and joins the main nullah, which flowing north-westerly 4 miles falls into the Munar, and passes in its course the villages of Pothgul, Ragawaredhypett and Velchal. The banks of this nullah are high, the bed sandy, and towards the Munar is covered with bushes. It contains a small quantity of water during a great part of the year.

There is also a considerable nullah, without a name, which rises at the Juktial tank, and flows eastward by Polass, Kullada, Chekulla and Lothanoor; at the latter village a large branch comes in from the S. W. Its source is at the Mulialla tank, and it comes down by Arally and Dulnoor. The main nullah continuing its course easterly crosses the boundary, and falls into the Godavery in the Namgeer Circar. The lands at Kumbumpully are watered by a canal cut from this nullah. This nullah has a great number of ramifications; its course is very direct, bed sandy, and banks low.

6. *Lakes, Tanks and Reservoirs.*—The numerous tanks scattered over the surface of the Circar are formed entirely for the purpose of irrigation. The most considerable are at Sunnigaram, Rudrangee, Juktial, Yamulwadda and Gurrappully, but the largest covers little more than one square mile.

7. *Mountains and Hills.*—The most remarkable chain of hills is that in the S. W. extremity of the Circar, the highest points on which, Annantagherry, Sunnigaram, and Kooramounza stations, are situated respectively 1,871, 1,838, and 1,882 feet above the level of the sea. This chain extends N. N. W. 19 miles, and has but two defiles in the whole length; it also extends south-easterly $3\frac{1}{2}$ miles by a low rocky ridge. The slopes are very steep, and composed mostly of granite rock.

The western portion of the Circar is covered with hills, on the highest points of which the Kuncherler, Munarler, and Ravullagootah stations are situated; they are respectively 2,193, 2,227, and 2,267 feet above the level of the sea, and it is remarkable that these highest points are composed of laterite rock, which is not to be met with in any other part of the Circar. On these hills a very broken ridge may be traced passing from the Padyra station to Kuncherler, and thence winding westward round to Munarler station. The southern and western sides fall abruptly, but the eastern runs off in one long and gradual slope, so that the ground lying between the

Kischerler and Munarler stations is a sort of high table land, on which are a number of small villages. On the northern side of the Munarler station is another table land, something higher than that on the southern side, which has several villages situated on it, and is bounded on the south-east and north by steep slopes, which run off and form rugged ridges. That running northward extends in broken and detached ridges nearly to the Godavery.

The portion lying between the Timmapooram and Konapooram stations is also a high table land, formed by the land gradually rising from Kodamilla, and being bounded on the south, west, and north by abrupt hills, from which rough ridges and detached hills extend themselves in all directions. Timmapooram station is 2,118 feet above the level of the sea, and Konapooram 2,088 feet. From this table broken and detached hills extend as far as Tatlawaya station, which is situated on the right bank of the Godavery on a small table land 1,760 feet above the level of the sea. This table is uninhabited, falls gradually towards the river, is bounded on the S. W. by a steep fall, and runs off to the S. E. about 7 miles, and forms a very high broken ridge of hills, on which the Bolecherro, Kumberpully and Kupperlerpett stations are situated. This chain runs almost parallel to the Godavery, is the highest in the part of the country, and is composed of a peculiar granite, the ground of which is red, and pieces of quartz or crystal are stuck on it, as it were, some of which are near one foot in diameter. The lowest hills, lying parallel to these to the south, are composed of blue granite, dark earth, and rocks. These hills are inhabited, as well as the former, by Goands, who live by hewing timber, which is an article of trade.

A number of small table lands, bluff rocks and peaks, are scattered over the eastern portion of the Circar. Deecondah table, Porendlah, Kurkendpully, and Sulloorgut peaks, the highest, are respectively 1,842, 1,620, 1,733 and 1,527 feet above the level of the sea. The numerous detached hills are composed of broken masses of black granite and earth, some are solid rocks, and others are crowned by masses of huge granite stones thrown together in strange confusion.

The small ridge on which Rambudra station is situated runs N. 30° W. 3 miles, and is composed of a blue granite, which contains a great quantity of iron ore. The small rocks scattered about the villages of Velloola and Raygoonda are of the same sort of stone.

None of the hills have names.

8. *Forests, Woods and Jungles.*—The whole Circar is covered with jungle, which in the vicinity of the hills is composed of small trees, that on the plain being commonly bushes. Among the hills extending from Taplawaya to Kumberpully, and in the Deecondah and Ariskotah pergunnas, teak and blackwood are procurable from 1 foot or 1½ feet in diameter, and 20 or 30 feet of timber; also bamboos, which are not to be met with in other parts of the Circar. A small quantity of teak is also procurable about the Munarler station, and on the S. W. of the Annantagerry hills. The wood found in other jungles is of a worthless description.

The chief productions of the jungle are gallnuts and the yellapa fruit; from the latter an intoxicating liquor is made, and both are an article of trade; also hill yams (chensoo gudda) are found commonly on the hills about the Godavery, and marking-nut in various parts.

9. *Establishments and Agrarums of Bruhmins and of other sects, and Polliams, Jaghirs, &c.*—Dernapoory, Damarazpully and Palass are agrarum villages.

Goadoor is a devastanum village, and belongs to the pagoda at Tinnevely. For jaghir villages see the Register; in this respect, however, the Register is very inaccurate.

10. *Cattle and Animals.*—The domestic animals are of the common kind, and not very abundant; poultry is very scarce. The jungles are infested with wild beasts. The royal tigers are numerous, and render many of the roads unsafe. In the jungle about the Ariskotah hills there are four or five elephants, which are said to have made their escape at the battle of Madapoor, fought near Chennoor, on the left bank of the Godavery, by the Russell Brigade under Major Pitman, in 1821, and ever since to have remained at large. During the wet season

they range about the base of the Yelchal hills, and as the dry season approaches retire to the hills in the Ariskotah pergunna. They are perhaps harmless, but the natives of the part of the country, being unaccustomed to such visitors, are dreadfully alarmed at their approach, and fly from their villages. About the Kunchenler hills spotted deer are to be found. Spotted deer and elk are also to be found in the hills bordering on the Godavery.

11. *Remarkable Buildings.*—An eedgah at Eilgundel, also a mosque on the rock. The pagodas at Yamulwadda and at Dermapoory, a dome and musjid at Bejeegherry, an ancient Jain pagoda at Dooloor, a neat pagoda at Sungium, a pagoda at Illundakoonta. Two pagodas at Cheeskoor, several small pagodas one mile N. W. from Jaggasamoodrum station, a pagoda at Korutla. Three very ancient Jain pagodas dedicated to Ramaswamy, all of the same architecture—one at Walgonda, one at Roykul, one at Itkial. A pagoda at Cheerlavuncha. None of these buildings, however, are in any way remarkable.

12. *Mines, Minerals and Manufactures.*—There are no mines. An iron ore is collected about the Rambudra station, from which iron is made. On the west of Yelchal hill station, in a small nullah, a sort of red stone or clay is collected, from which iron is made. At Ravullagottah and Mumarler stations an iron ore is collected in the form of pebbles, from which iron is made at the village of Ravullagottah, in the Nandair Circar. At Rungapett, 6 miles N. of Juktial, black particles of ore are collected in the streams descending from the Allepooram hills.

Steel is made at Verbooramputnum, Magaleypett and Chintelpett.

Iron at Warasakota, Dubba, Kondapooram, Yadundie, Moottiampett, Yelchal, Rungapett.

Hatchets at Verbooramputnum, Chintelpett and Magaleypett.

Brass pots at Juktial and Sunnigaram.

Coarse paper at Metpully, Korutla, Lingapoor, Manikoondoor, Juktial, Kurreemuggur, Ram Muddagoo, &c.

Silks at Yamulwadda and Korutla. The silk is said to be brought from Nagpoor.

Fine cloths at Yamulwadda, Juktial, Korutla, Gumberowpett, Sirconda, Bejeegherry, &c.

Coarse cloths at a great number of the large villages.

Gunny cloth at almost all the large villages in the Korutla, Velloola and Yempully pergunnas.

Kumbles are manufactured at a number of the villages.

13. *Roads, Passes and Defiles.*—The two principal roads are a small bandy road leading from Hyderabad to Eilgundel and thence to Juktial; the latter path, however, is only a bullock track, and a small bandy road leading from Hyderabad to Juktial, and thence to the Godavery. This road is passable throughout for bandies. From the last-mentioned road a Brinjaree road strikes off from Kutcoor to the ferry on the Godavery at Vaulgoonda, and from this path another strikes off from Sirconda to the ferry at Chintulchanda; also a small path strikes off westward from Sunnagool through the hills to Ravullagottah, in the Nandair Circar, viâ Jingul, near which is a very steep pass.

From Juktial a small path strikes off eastward to Dermapoory, and another westward to Korutla, and thence to Velloola and to Kummerpully in the Nandair Circar, and finally joins the road which is the common route from Hyderabad to Nagpoor viâ Nirmul. There is a small cart road from Eilgundel to Mullangoor, but the road from Eilgundel to Ramgeer appears closed.

There is also a small path leading through the hills from Kodamialla to Korutla viâ Govindaram, but it is nearly closed. These are the chief roads; they must, however, be understood to be mere tracks from village to village, and frequented only by Brinjaries and petty traders.

The only pass worth mentioning is that on a small bullock path W. of Jingul, leading from Sunnigool to Ravullagottah, in the Nandair Circar. It is half a mile in length, about 45° descent, very rough, and only passable for bullocks.

The principal defiles are one on the road leading from Naganoor to Rodrangee and Tandrala, and one on the small road from Juktial leading northward to the

Gödavery, and extending from Rungapett to within 3 miles of Kunlapully. It is about 6 miles in length, irregular, and has several defiles opening upon it.

There are a great number of small passes and defiles, which it would be useless to detail.

14. *Soil, Productions and Mode of Husbandry.*—Of that part of the country which may be called plain, or flat, the high land is generally composed of a red gravelly soil; the low lands are of a dark vegetable sandy soil, proper for raising rice. Regarding the mode of husbandry, there is nothing peculiar to the Circar. The following are the chief productions:—rice and a small quantity of dry grain, chenna, a small quantity of hemp, arrack made from toddy and the yeluppa fruit, a small quantity of coarse sugar, betelnut, a small quantity of wheat called jow, a few common vegetables, onions, pepper, pumpkins, &c.

15. *Population and Inhabitants.*—The population is Telinga with a proportion of Brahmins and low-castes, and a number of disorderly characters—Musalmans, Arabs, Seikhs, Rohillas, &c., the retainers of Government.

The Ariskotah pergunna is almost totally ruined and overgrown with high forest, and chiefly inhabited by Goands and Koyers, whose principal occupation is hewing timber. Two or more huts constructed of bamboo wattle and dab comprise a Goand village. Their food consists chiefly of roots and wild yams, or hill potatoes (gensooguddah), which the females and children usually employ themselves in collecting.

The Musalman population does not exceed the $\frac{1}{100}$ of the Telinga, and the total population is very small for the extent of country.

16. See the table of triangles and latitude and longitude of hills, &c.

17. See the general view and description of the boundary.

18. Military objects.—See the description of routes, &c.

Roads, &c.—

Ditto

in the Circar.

19. *Miscellaneous.*—The Circar is generally in a ruined state, and the villages falling to decay. This may be attributed partly to an unhealthy climate, but more particularly to bad government, extortion, and want of security, which has driven the people from their villages, and caused the country in many parts hitherto cultivated to be overrun with jungle.

The pergunnas of Ariskotah, Deecondah, Nundigherry, and Beejeegherry are almost entirely ruined, and overgrown with jungle, and Nizambad and Racherla are nearly in the same state.

The Circar is at present in charge of an Amil, in Government pay, and each pergunna is in charge of a Naib, under whom are Deshmooks, some collecting the revenue of but a few villages, and others that of a whole pergunna. By the Naibs the revenue is transmitted to the Amil, and by the Amil to the Government treasury.

Kissen Doss, a Soucar at the Residency, pays Rs. 50,000 annually for the rent of the Beejeegherry pergunna, which of late years has been ruined by the extortion and barbarity of one of the nobles, to whom it belonged. It was formerly rented for Rs. 70,000. The Vempully and Velloola pergunnas, also the village of Yamulwadla, and the revenue of a few others is also purchased by the same Soucar, and in the charge of a Mr. Dighton, a partner or agent, under whose charge they are apparently beginning to improve.

The Circar is well supplied with water, having two large rivers and six large nullas, with innumerable small streams; except, however, on the small nullas, across which dams are thrown to form tanks, the whole of the water is allowed to run off through numerous canals; and tanks might be formed, and the wet cultivation increased near three-fold. The red soil is also well suited for raising dry grain, and is sufficiently productive, but there are no labourers, the country is very thinly populated, and the ryots poor.

(Signed) J. S. DuVERNET,

Lieutenant and Surveyor superintending Hyderabad Survey.

GEOGRAPHICAL MEMOIR OF THE CIRCAR OF MULLANGOOR.

Its Situation, Extent and Boundary.—The Mullangoor Circar is situated in N. latitude between 18° and $18^{\circ} 21'$, and in E. longitude between $78^{\circ} 54'$ and $79^{\circ} 27'$, and is bounded by the following Circars :—On the N. by Rangheer, on the E. by Boeejeegherry and Yelchal (insulated pergunnas of the Eilgundel Circar), on the S. E. by Worungul, on the S. by Bhongeer, on the W. by Maiduck, and on the N. W. by Eilgundel. On the side bounded by the Bhongeer Circar is situated the village of Koniapully, which belongs to the Eilgundel Circar, and forms the boundary for a short distance. The figure of the Circar is long, narrow and irregular, stretching N. E., its greatest length is about $42\frac{1}{2}$ miles, greatest breadth from 13 to 16 miles, its mean breadth only 4 miles, and comprises an estimated area of $403\frac{1}{2}$ square miles, of which $284\frac{3}{4}$ miles are at present waste or covered with jungle, $42\frac{1}{2}$ are occupied by rice lands, $35\frac{1}{4}$ by dry cultivation or arable land, $19\frac{1}{2}$ by steep slopes, rocks, or mountainous hills, $21\frac{1}{2}$ by tanks, and a small portion by tamarind topes and palmyra trees (included in the preceding estimate).

2. *Divisions and their Boundaries.*—The Circar is divided into three pergunnas, viz., Mullangoor or Avalee, Hassanabad and Rajagopalpett, under each of which are a number of principal villages, some of which have subordinate villages, for a list of which see the accompanying Register of Villages.

3. *Capitals, Cusbas, Droogs, Forts, Market-places, &c., and other considerable places.*—The Circar is desolated, so that there are no considerable villages, no market villages, and few that contain bazars or shops. The following are the principal villages.

Mullangoor, the capital of the Circar, situated in (Deshmook's house) E. longitude $79^{\circ} 22' 22''$ and N. latitude $18^{\circ} 17' 59''$, at the south base of the droog of the same name, has been a village of some importance and extent. On the south of the village, among the tamarind trees, is a small pagoda, and in its vicinity a large building surrounded by a wall, the residence of an aged female relation of the Deshmook. Round about the village are several fine wells, from which water is drawn to water garden cultivation, and within the village 6 bazars, 2 weavers' looms, and a small pagoda, dedicated to Gopalswamy. The Naib in charge of the Circar resides at Sooropully, a subordinate village of the Avalee, and there holds his cutcherry and transacts all business connected with the revenue.

Hassanabad, the capital or cusba of the pergunna of the same name, is situated in (ghurry N. E. angle) E. longitude $79^{\circ} 14' 58''$ and N. latitude $18^{\circ} 7' 44''$, and is only remarkable for a large tank 2 furlongs to its south, and the extensive rice lands which are irrigated by it. There are two small pagodas, one of which is dedicated to the goddess Yellonee, and a festival is observed annually.

Sundagherry is a very small village, having a small mud ghurry. On the highest part of the hill to the N. E. is the trigonometrical point of the same name, and about 200 feet S. thereof a small pagoda dedicated to the goddess Venket Eeshwar, to which a jatra takes place annually and lasts nine days.

Rajahgopalpett, the cusba of the pergunna of the same name, is situated on the road leading from Secundrabad to Eilgundel. The ghurry is in N. latitude $18^{\circ} 5' 48''$ and E. longitude $78^{\circ} 56' 56''$. This village, at present the tunkha jaghir of some Rohillas, is thinly populated, and contains but 2 or 3 bazars. On the roadside is a neat mosque, on the east of the village a pagoda and a large tamarind tope, and to the west, on the bund of the tank, a ruined pagoda, and a considerable quantity of valuable paddy land.

Nunganoor is a very small village $5\frac{1}{4}$ miles S. 76° east of Rajahgopalpett, where is a stone pillar on a flat rock 2 furlongs south of the village, on which is carved a human figure 12 feet high, and which the Brahmins teach the people to condemn and abuse, lest some great evil should befall them.

Chimakodoor is a large and regular-built village having a strong mud ghurry, and is the residence of a Deshmook; it is situated in N. latitude $18^{\circ} 9' 44''$ and

E. longitude $78^{\circ} 56' 37''$. The rice cultivation at this village is extensive, and there is a pagoda,—the idol is called Mullanah Deo,—to which a jatra annually takes place every Sunday in the month of February.

Palmakoil is a small village, at which is a neat pagoda dedicated to Chumba Deo.

The following are the most populous villages :—Thakkul, Kaysaputnum, Inthoorthy, Yerradapully, Sydapooram, Chenjarlah.

There are three droogs, namely, Mullangoor, Kotagherry and Raicondah or Goorum, on the highest points of which are situated the trigonometrical points of the same name ; the two latter have long been in ruins and totally abandoned. Kotagherry is situated on a range of mountainous hills, and contains a fine supply of pure water. It appears never to have been completed, and to have been so long abandoned that few of the natives can point out where the petta stood, though it was once the capital of a pergunna comprising 16 villages.

Mullangoor.—The mountain or immense rock upon which this droog is built rises 690 feet above the plain, and, calculating from the height of Porendlah station, is 1,701 feet above the level of the sea. It is an insulated hill having a detached hill on its S. and several detached hills on its W., which, however, do not rise more than one-fourth its height above the plain. The entrenchments consist of a high wall formed of huge blocks of rough-hewn granite, piled one upon another, but for the most part not cemented, and where cemented the stones have been laid first, and the chunam used to fill the interstices. The W. face is bounded by a precipice of rock of about 200 feet, on the edge is a parapet wall ornamented with turrets, which is continued to the N., where several tanks of good water are formed, and where a lower entrenchment is commenced, which together with the former is continued to the E. and round to the S., where is the entrance to the droog. The E. is the only side on which the hill could be ascended, and round this side entrenchments extend, consisting of the sort of wall before mentioned, having a small terrace on the interior, and of several enclosures perfectly cut off from each other and not unskillfully disposed ; all such preparations, however, appear unnecessary, the hill on this side being covered with immense masses of granite and jungle, and the ascent apparently impracticable. The path to ascend the droog leads straight from the W. pettah gate up the hills, and to a considerable height is fortified ; the E. pettah wall and rampart, like the W., are constructed across the ravine, and led up both hills until they become no longer accessible. Thus the pettah is perfectly enclosed and sheltered. The part within the entrenchments is now abandoned and overgrown with jungle, and the droog left to the care of a few peons who live at the western pettah gateway. Bala Purshaid, the son of Chendoo Lal, the Peshkari Dewan, is killedar of Mullangoor, and has an assignment of 8,666 rupees for the repair, &c., of the fort, and also a personal jaghir, rated at 11,957 rupees. The droog is said to have been built by one Hindoo Rajah Molong, whose race has long been extinct, and the tales of whose deeds are now forgotten. He was probably one of the Rajahs of Worungal, as in Briggs' "Mahomedan Power in India" Sooltan Kutb-ool-Moolk, the first Kootoob Shahi king of Golcondah, enumerates Mullangoor among other forts taken by him when first engaged in spreading the banners of the Faithful, and reducing the infidels of Telingana from the borders of Worungal to Rajamundry. It was therefore taken about A.D. 1507, but as Rajah Ludda Dew of Worungal was besieged in his capital so early as A.D. 1309 by Muluk Kafoor, a general of Alla-ood-Deen Khilji, of the second Tartar dynasty of the kings of Delhi, it may have first fallen into the hands of the Musalmans at a much earlier period.

4. *Villages and Towns.*—For the actual position of every village see the accompanying Register of Villages.

5. *Rivers and Anicuts on them, and Canals.*—There are no rivers or nullas of any size. The two largest nullas are—one which takes its rise at the Hossanabad tank, and flowing N. N. W. passes the villages of Petlapully, Nacrigomal, Noolapoorum and Koolapoorum, three-quarters of a mile south of which it leaves the Circar. Another takes its rise at the Kaysaputnum tank, in which the water falling on the flat land to the S. and W. is collected. It runs E. for about 5 miles, passing

the villages of Venkayagoodium and Mootherum, at the latter it takes a north-easterly course, passes close to the N. of the village of Guddagoolum, where a small nulla falls in from the south, it thence continues its course E., and leaves the Circar 4 furlongs east of the ruined village of Kulvully, on the rock near which is a secondary station. There is also a small nulla to the N. of Rajagopalpett, which falls into the great tank at Sunnigarum, in the Eilgundel Circar, and another which crosses the Circar passing to the west of the villages of Gunnapoor and Akapully. The nullas above mentioned are all sandy, dry during the hot season, and not, on an average, more than 20 or 30 yards broad; in some places, however, they spread considerably, and, on the contrary, contract in others.

6. *Lakes, Tanks, Reservoirs.*—There are about 100 tanks of considerable size, besides near half as many more which are small or ruined; the largest is that at Hassanabad; the bund is $1\frac{1}{4}$ miles in length, and the bed occupies about $1\frac{1}{2}$ square miles. The next most considerable are situated at Kaysaputnum, Lingapoor and Mullangoor. The whole are formed for purposes of irrigation.

7. *Mountains and Hills.*—Near the S. E. boundary is a very high range of hills, or mountains, their general direction is N. W., and their height above the level of the sea more than 2,000 feet. On the southern side they are very steep and rocky, and are connected by under-features to a small rocky ridge to the S. which runs in a south-westerly direction, and forms for a short distance the boundary of the Circar; to the south they are less steep, on the top they are somewhat flat and wavy, and the slopes falling on the plain graduate. The whole range is covered with jungle infested with tigers and very unhealthy. The highest hills are at Shugooroomanady, Kathagut, or Lingapoor, Mullapoorum and Mullangoor; these are all masses of granite rock very steep, and their highest points from 1,600 to 1,742 feet above the level of the sea. The plain country is flat and undulating, from which these hills rise like rocks above the sea. There are also a great number of small rocks which rise to the height of about 300 or 400 feet. The hill at Goorum is of this kind, and also that to its south, which is a little higher, and has rocky under-features spreading through the jungle to a considerable distance both to the south and west.

8. *Forests, Woods, Jungles, &c.*—The whole Circar is covered with jungles, and about the Kotagherry hills at Goorum and at the base of other hills it is of some growth; in other parts the jungle consists of bushes, and places recently cultivated are generally covered with jujubee bushes. The timber of the densest jungle, which is about the base of Kotagherry hills, though of considerable size, is of a worthless description, and few if any teak trees are to be found. The number of palmyra trees is considerable, and there are a few cocoanut, date and tamarind trees in the vicinity of the villages.

9. *Establishments and Agrarams of Brahmins and of other sects, and of Polliams, Jaghirs, &c.*—There are no establishments of religious sects. For the jaghir villages see the Register of Villages.

10. *Cattle and Animals.*—Sheep, goats and oxen are neither numerous nor of superior description. Poultry is very scarce and difficult to obtain. Game is of the kind commonly found in a plain country and not very abundant. The tanks in some places are covered with wild fowl of various kinds. Wild hog and antelope are scarce, but porcupine, wolves, bears, cheetas and tigers abound. The latter are very fierce, and commit great ravages, devouring both man and beast.

11. *Remarkable Buildings.*—None.

12. *Mines, Minerals and Manufactures.*—There are no mines or minerals; the manufactures are confined to a few coarse cloths and kumbliies which are manufactured at the larger villages.

13. *Roads, Passes and Defiles.*—On the south-western extremity near Yelka-toor a small road enters the Circar leading from Secunderabad to Eilgundel, and passes thence by Moondaroy, Rajahgopalpett and the ruined village of Kummispett, Wagalapoorum and Kutroopully, leaves the Circar about one mile N. of Kutroopully hill station, and continues its course to Sunniagarum, total distance $8\frac{1}{4}$ miles. On the N. of the Circar is a small bandy road which joins the capital of the Circar of Mullangoor and Eilgundel via Manakoondoor, total distance 10 miles. There

is also a road leading from Mullangoor to Warungal via Mōtpully Station, and another from the same place to Rangheer, but these are so entirely closed that no traces of them could be found. There is a small bullock road leading from the capital to Bhongeer via Yennumpully, Syapoorum, Gunnapoor, Byekul and Mullakanoor of the Warungul Circar. This at present is a mere path and nearly closed. For a more particular description see the Survey of Roads. There is also a small path leading from Mullangoor to Nungapoor, but which at present is nearly closed.

14. *Soil, Productions and Mode of Husbandry.*—The hills are either solid granite rock, or a dark sandy soil mixed and covered with great masses of grey granite, and their tops generally terminate in a heap of rocks. The high ground of the plain is generally a red gravel, the lower grounds sandy about the nullahs, but generally a sandy and vegetable soil, well suited to growing rice, and for this purpose numerous tanks are formed; the rice is generally cultivated below the bund and sometimes above, around the water's edge; during the dry season the higher rice lands are watered from wells. About the rice grounds are a considerable number of palmyra and a few cocoanut trees. The villages have in general in their vicinity one or more tamarind topes. The peasantry are generally very poor, and there is nothing in the mode of husbandry peculiar to the Circar. The following are the chief productions: a small quantity of rice and various dry grains, the produce of the palmyra and tamarind trees, and a few common vegetables, such as onions, chillies, cucumbers, pumpkins, &c., &c. The hills and jungles yield no valuable production.

15. *Population and Inhabitants.*—The population is Telinga, with a few Brahmins and a large proportion of Pariahs, together with a set of disorderly mercenaries of all classes,—Rohillas, Seikhs, Mahomedans,—the military retainers of the Nizam.

16. *Table of Stations.*—*Vide* Table of Latitude and Longitude, &c., and Tables of Triangles, &c.

17. Dispensed with on this survey.

18. For the general view, and description of the boundary, see the paper so called. The boundary of this Circar is very undefined, there being but few marks or boundary stones.

19. *Military Objects, &c.*—There is nothing to remark on this head: the roads have already been mentioned.

20. *Miscellaneous.*—Of this Circar ten villages of the Rajahgopalpett pergunnah are insulated in the Maiduck Circar, and one in the Warungul.

(Signed) J. S. DuVERNET, Lieutenant and Surveyor,
Superintending Hyderabad Survey.

MEMOIR OF THE BASSIM CIRCAR. .

Its Situation, Extent and Boundaries.—Bassim Circar, situated principally between latitude $19^{\circ} 26' 37''$ and $20^{\circ} 30'$ and longitude $76^{\circ} 24'$ and $77^{\circ} 36' 22''$, covering an area of about $2,351\frac{1}{2}$ square British miles, is bounded on the north by Gawilghur and Nernullah circars, on the west by Maiker and Jaulnah, on the south by Patree and Nandair, and on the east by Mahoor circar. The general aspect of this circar is hilly, the soil in the plains and valleys of rich black loam passing into one of a lighter and less productive character as the hills are approached. About two-fifths of the whole area is occupied by cultivation, principally of dry grain, as wheat, barley, Indian corn, jowaree, bajree, hemp, flax, chenna, peas, tillee, huldee, mustard, toor, and a variety of vetches and oil plants. Sugar-cane is cultivated to some extent, as also rice in small quantities, cultivated during the monsoons and brought to maturity unaided by any artificial mode of irrigation. The remainder of the circar is occupied by barren waste or jungly tracts, principally overgrown by the babool tree, *Acacia arabica*, which yields an inferior description of gum, being much less clear and pure than the gum arabic of commerce.

Divisions and their Subdivisions.—The circar is subdivided into pergunnas, viz., 1. Bassim or Havalee pergunna, containing 185 principal and two subordinate villages, of which 24 of the former and one of the latter are ruined and deserted. 2. Bannee pergunna, containing 49 principal villages, of which six are ruined and deserted. 3. Nursee pergunna, containing 152 principal and two subordinate villages, of which 16 of the former and one of the latter are ruined and deserted. 4. Kullunmooree pergunna, containing 58 principal and five subordinate villages, of which 3 of the former are ruined and deserted. 5. Ounda pergunna, containing 33 principal and one subordinate village, of which three of the former are ruined and deserted. 6. Chartanna pergunna, containing 36 principal and one subordinate village, of which nine of the former and one of the latter are ruined and deserted. 7. Dunnee pergunna, containing 51 principal and six subordinate villages, of which twelve of the former and six of the latter are ruined and deserted. 8. Mungrool pergunna, containing 119 principal villages, of which 27 are ruined. 9. Hingolee pergunna, containing one principal and eight subordinate villages.

Capitals, Kshahs, Market-places and other considerable places.—Bassim or Havalee, the capital of the circar, in latitude $20^{\circ} 6' 20''$ N. and longitude $77^{\circ} 10' 45''$ E., is situated on the highroad from Hingolee to Ellichpoor. This town, which covers an area of nearly one square mile, is tolerably clean and regularly built, the streets intersecting each other at right angles. There is a citadel in the centre of the town, but in a dilapidated and ruinous state. There is also a serai for the accommodation of travellers. The number of houses in the town is about 5,000, including 200 bazar shops, and the population may be estimated at about 15,000, of whom a large proportion are Mahomedans. It is the residence of a Killadar and garrisoned by about 250 irregulars of all descriptions. It has a weekly market on Wednesday, at which coarse cloths, brass utensils, grain and an inferior description of cattle are exposed for sale. A considerable quantity of cotton is also annually collected at this town for exportation to Bombay. A neat Jain pagoda, dedicated to Mahadeo, lies on the west of the town, which has been determined as a secondary station.

2. Bannee, in latitude $19^{\circ} 46' 45''$ N. and longitude $76^{\circ} 41' 40''$ E., a dilapidated town situated on the right bank of the Poorna river. It is the seat of the pergunna and contains about 200 houses and three shops; has a weekly market on Tuesday.

3. Nursee, a tolerable-sized town in latitude $19^{\circ} 45' 30''$ N. and longitude $77^{\circ} 3' 26''$ E. situated on the highroad from Jaulnah to Hingolee. It is a large walled town and has a strong citadel with a few pieces of ordnance mounted on its towers, and garrisoned by several Seebundee pions and horsemen. Some years back a company of infantry was located to the east of the town for the purpose of

collecting and guarding the revenue. The Killadar resides within the citadel. There are twenty bazar shops, and a weekly fair is held on Sunday. The town is supposed to contain from 800 to 1,000 inhabitants. The principal villages in this pergunna are as follows :—Hurrial, Goragaon, Shengaoon, Jeypoor, and Kyree. These are large market towns containing from 300 to 400 houses each. Kyree is remarkable for a pagoda on an eminence situated in latitude $19^{\circ} 47' 2''$ N., longitude $76^{\circ} 47' 7''$ E. An annual fair takes place in the month of March, when there is a large concourse of people assembled from great distances. The fair lasts for three months, and superior shawls, cloths and articles of every description are brought for sale.

4. Kullumnooree, a large trading town, situated in latitude $19^{\circ} 40' 27''$ N., longitude $77^{\circ} 21' 25''$ E. It is surrounded by a mud wall and has a citadel in the centre, a furlong S. W. of the village. A large weekly fair is held on Tuesday, and, with other commodities, cattle of good description are brought for sale from neighbouring villages. The town consists of from 1,000 to 1,200 houses and 15 bazar shops. The manufactures consist of coarse cloths and ordinary blankets or kummuls. An eedgah situated on an eminence about four furlongs east of the town has been determined as a secondary station. Massoad, Wakodee, Kandlee, Sanduz and Ganjpoor are the only large villages in this pergunna, each having from sixty to eighty huts. They carry on an extensive trade in cotton. The rest of the villages are small and of no note.

5. Ounda, a small town situated between a ridge of hills in latitude $19^{\circ} 32' 24''$ N., longitude $77^{\circ} 5' 12''$ E., with a population of about 600 souls. It is remarkable for a temple dedicated to Mahadeo under the form of Nagnath, which lies about 200 yards S. of the town, and is much resorted to by pilgrims. The town is situated on the high-road from Mominabad to Hingolee via Gangakhair. Poorjul, in latitude $19^{\circ} 27' 20''$ N., longitude $77^{\circ} 3' 40''$ E.; Asola, in latitude $19^{\circ} 28' 38''$ N., longitude $77^{\circ} 2' 27''$ E. Karrenjalla, in latitude $19^{\circ} 25' 26''$ N. and longitude $77^{\circ} 0' 24''$ E., are large populated villages, consisting of from 150 to 200 inhabited houses each. Their chief trade is in cotton, coarse cloths and jagree.

6. Chartannah, the capital of a pergunna of the same name, in latitude $19^{\circ} 38' 14''$ N., longitude $76^{\circ} 35' 2''$ E., an old town, surrounded by a mud wall with stone gateways. It contains about 200 inhabited houses and three grain shops, and has a cattle market held on Fridays. The villages in this pergunna are most of them in ruins, and the rest small and of no note.

7. Damnee, in latitude $20^{\circ} 22' 52''$ N., longitude $77^{\circ} 30' 25''$ E., a middle-sized village containing about 200 inhabited houses and two grain shops. A weekly fair is held on Wednesday. In the centre of the village is a large pagoda dedicated to Khundoba. There an annual festival takes place. Parwah, Musnee and Kowtal are tolerable-sized villages, and each consists of about 80 or 100 inhabited houses and two bazar shops. The rest of the villages in this pergunna are too miserable for description.

8. Mungrool, a large and populous town, situated in latitude $20^{\circ} 19' 2''$ N., longitude $77^{\circ} 24' 10''$ E., is the seat of the pergunna of the same name. It has a population of 2,000 souls, and is on the military road from Hingolee to Ellichpoor. This town contains several opulent Sowcars and 60 bazar shops. Coarse cloths and kummuls are manufactured to some extent. A weekly market takes place within the town on Saturdays, when small grain and pulse of every description may be obtained. Towards the north end of the town is erected a dome, a large edifice built of hewn stone and lime, and surrounded by a wall built of the same materials. This part of the town is inhabited by Mussulmans. Several groves of mango trees are seen in the vicinity of the town.

Sailoo, situated about $8\frac{1}{2}$ miles N. W. from the capital, is a large market village on the tapal road to Nagpoor, and has about 300 inhabited houses and twelve bazar shops. The population are principally Koonbees. The Uddan river runs about two furlongs S. of the village, where there is good encamping ground. A large fair takes place on Wednesdays, when grain, &c., brass utensils, as well as cattle of good description, are brought from the surrounding villages.

Bailkhaid, in latitude $20^{\circ} 21' 32''$ N. and longitude $77^{\circ} 26' 19''$ E., consists of about eighty houses and two grain shops; is remarkable for a cattle market held on Mondays.

Thuralla, situated on the tappal road to Nagpoor, and Gunneishpoor, on the right bank of the Uddan river, are tolerable-sized villages, consisting of about forty houses and a grain shop to each. The rest of the villages are mere hamlets of five and six huts and of no particular note.

Hingolee, a pergunna of six subordinate villages, is a large and populous town in latitude $19^{\circ} 42' 56''$ N., longitude $77^{\circ} 10' 50''$ E., and on the military road from Secunderabad to Nagpoor. The town is situated about 800 yards from the left bank of the Khair river. To the north of the town is a large tank, which retains water throughout the year. The streets are regular and cross each other at right angles. It has a citadel in the centre, and on one of the bastions a most remarkable tree, which has been determined as a secondary station. It is the residence of several opulent merchants, who carry on an extensive trade in cotton. A division of the Nizam's army, consisting of a regiment of native infantry, a wing of irregular cavalry, and a company of Golandauze, are cantoned about 800 yards N. E. of this town. A market is held on Mondays, where grain, brass utensils and native cloths are procurable; also cattle of a very good description from surrounding villages.

Rivers.—The principal rivers in Bassim Circar are the following, viz.: Poornah, Payn Gunga, Khair and Kantee Poornah.

Poornah River.—This river enters the Circar in latitude $19^{\circ} 53' 37''$ N., longitude $76^{\circ} 26' 33''$ E., $\frac{1}{2}$ a mile N. W. of the village Wagrool, from thence descends in a south-easterly direction, through a rugged valley forming the boundary between Mairker and Bassim Circars for $7\frac{3}{4}$ miles. It then proceeds easterly for $7\frac{1}{2}$ miles, when it forms the boundary for a mile, and descends south-easterly, passing close N. of Bannee, a kusbah town, and continuing the same course for seven miles forms a junction with the general boundary. (*Vide* description of boundary of the Patree Circar.) The course of this river through the Circar, including windings, is about $83\frac{1}{2}$ miles; the banks are from 20 to 30 feet above the bed of the stream; average breadth from bank to bank 400 yards. The bed is for the most part stony, and retains water throughout the year, although a very scanty stream during the hot months; quits the Circar in latitude $19^{\circ} 27' 37''$ N. and longitude $76^{\circ} 58'$ E.

Payn Gunga.—This river enters the Circar in latitude $20^{\circ} 2' 52''$ N. and longitude $76^{\circ} 48' 52''$ E., a mile and a quarter north of the village Kelda, and proceeding in an easterly direction forms the common boundary of the Mairker and Bassim Circars for $13\frac{1}{2}$ miles. It then proceeds south-easterly through an open and fertile valley, passing by several villages, receiving the waters of numerous streams, and forming the boundary for $12\frac{3}{4}$ miles between the Mahoor and Bassim Circars; and continuing in the same course through a rugged and wild country quits the Circar boundary in latitude $19^{\circ} 39' 7''$ N. and longitude $77^{\circ} 36' 23''$ E. The banks of this stream are generally low, and the bed very muddy; the average breadth from bank to bank is about 200 yards, and it retains water for five or six months in the year. The general direction of this river through the Circar is south-easterly, and its distance $90\frac{1}{2}$ miles.

Khair River.—This small stream enters the Circar in latitude $19^{\circ} 54' 7''$ N. and longitude $76^{\circ} 47' 13''$ E., seven furlongs N. W. of Baithoora; from thence it descends in a south-easterly direction through a rugged valley flanked by low table ridges for eleven miles; thence it takes a south-easterly course, leaving the town of Hingolee half a mile to the left, and continuing in the same course for five miles quits the Circar in latitude $19^{\circ} 39' 45''$ N., longitude $77^{\circ} 13' 48''$ E. After a course of $37\frac{1}{2}$ miles it re-enters the Circar and descends in a south-easterly direction for $3\frac{1}{2}$ miles, quits the Circar for 4 miles, and then forms a junction with the general boundary, which it defines for about $4\frac{1}{2}$ miles, when it again quits the Circar, in latitude $19^{\circ} 33' 30''$ N. and longitude $77^{\circ} 28' 38''$ E. The banks of this stream are from eight to ten feet above the bed, and the latter for the most part is composed of sand and mud; the average breadth from bank to bank is about 150 yards. This

river retains water throughout the year, but the quantity is very scanty during the hot months.

Kantee Poorna.—This stream takes its rise on the low table hills a mile and three furlongs S. W. of the village of Kantee, in latitude $20^{\circ} 9' 5''$ N., and longitude $77^{\circ} 8' 39''$ E., proceeds north-westerly through a wild and hilly tract for $20\frac{1}{4}$ miles, and then meets a considerable stream half a mile east of the ruined village of Kinkhaid; it then assumes an easterly course, receiving the waters of numerous small streams, and quits the Circar in latitude $20^{\circ} 24'$ N. and longitude $77^{\circ} 14' 20''$ E. This stream is extremely rapid during the monsoons, the banks are steep from 40 to 50 feet above the level of the bed, which for the most part is rocky, retains water during the monsoon months, but is dry for the remainder of the year; average breadth from bank to bank about 200 yards.

Mountains and Hills.—The surface of this Circar is generally hilly, towards the south offshoots from the Sichel range extend over a large extent of country in the form of low and broad table heights. The same features prevail on the eastern, western and northern boundaries. In the vicinity of the capital the country is open and undulating, but on the eastern and northern boundaries is very rugged and broken.

Forests, Wood and Jungles.—The hills and ravines in this Circar are thickly wooded, but the trees of which these woods are composed consist of a description of stunted and bastard teak, babool, moha or yilpa, yapa and a variety of low thorny shrubs which do not attain any great size.

Bastard teak from its stunted growth is hardly of any size. The babool tree is extensively used in the construction of ploughs and other implements of husbandry.

Arrack is distilled from the flowers of the moha tree; they are also dried and pounded and used as food. The yapa tree is generally employed in the construction of native buildings.

Cattle and Animals.—The domestic animals, viz., cows, buffaloes, sheep, &c., are abundant; carriage and draught cattle are also common. Of wild animals there are tigers, leopards, cheetahs, hyænas, wolves and a few bears. Neilgae, spotted deer, the common and goat antelope are also to be found in the jungly and hilly tracts. Aquatic game is scarce, and only to be found in the beds of large rivers.

Roads.—*Vide Table of Roads.*

Population and Inhabitants.—The population of this Circar may be estimated at 23,515, allowing ten mouths to a square mile. They are chiefly composed of Hindoos of various classes, Mangs and Dhers, but the bulk of the population are Mahrattas. A considerable number of Mahomedans and a few Seikhs are resident in the larger towns; they are chiefly employed as sepoy and peons by the talookdars of the district.

MEMOIR OF THE NANDAIR CIRCAR.

General Description.—This extensive Circar, which is situated principally between the seventeenth and twentieth degrees of north latitude, and comprehends the subordinate district of Nirmul, is bounded on the north by the Maikur and Mahoor Circars, to the south by Maiduck, Kowlass, Beeder, Kullianee, and Nuldroog Circars, to the east by Ramgheer and Eilgundel, and on the west by Darroor and Patree Circars. In length from east to west it may be estimated at 140 miles, by 90 the average breadth, and comprehending within its limits an area of nearly ten thousand square miles. The entire amount of arable land is about 3,700 square miles. The average height of this district above the sea is between twelve and thirteen hundred feet, its north-western extremity being the highest point, from whence there is a gradual descent to the southward and eastward. It is traversed by the Godavery river, which flows through the Circar from west to east, and with numerous smaller tributaries conduce greatly to its general fertility. With respect to its general features, the Circar may be divided into two nearly equal portions. The eastern division is, with very trifling exceptions, mountainous and woody, the valleys only being cultivated, generally with rice. The western portion of the Circar consists of extensive open plains with many isolated hills and small detached groups or ranges dispersed over its surface. A very large proportion of this division of the Circar is cultivated with dry grain, cotton, some tobacco, and a variety of oil plants. The geological character of by far the larger portion of the district is basaltic, the prevailing rock a kind of globular basalt embedded in concentric layers of the same mineral but of a softer texture and generally in a rapid state of decomposition. During the rains vast quantities of the *débris* of this rock are washed down, and form the rich black soil with which the villages are everywhere covered. In several parts of the Circar, as at Achola and in the group of hills immediately to the northward of Oodgheer, the basalt frequently shows a tendency to the columnar formation. In the bed of a nullah near Godree, to the westward of Oodgheer, it is found of a slaty texture and bright red colour. Nearly the whole of the small isolated hills in the Loharra Pergunnah lying to the southward and westward of Oodgheer are composed of a description of clay ironstones, in which are numerous temple excavations, but none of any magnitude or importance. A considerable portion of the Nirmul subdivisions of the Circar lying to the north-eastward is of a granitic formation, but it is not elsewhere visible as a surface rock.

Divisions and Subdivisions.—The Circar is divided into forty-two pergunnas, and these again are subdivided into talooks, as shown in the annexed table :—

CIRCAR NANDAIR.

Nos. of Pergunnas.	Names of Pergunnas.	Number of					
		Talooks.	Villages.	Principals.	Subordinates.	Ruined.	Jagheers.
1	Nandair or Havalee ...	8	189	148	2	6	30
2	Oodgheer ...	4	237	190	31	...	16
3	Daigloor ...	...	103	102	...	1	...
4	Kandahar ...	2	221	161	36	...	23
5	Laghan ...	...	131	119	4	...	8
6	Lant ...	...	118	87	14	...	17
7	Lotagheer ...	...	43	35	5	9	3
8	Rajoory ...	...	316	249	64	...	3
9	Kudkah ...	...	23	23	...	...	...
10	Baraholly ...	...	27	20	7	...	...
11	Owsa ...	4	217	176	13	5	27
12	Yellagudpa ...	...	71	57	14	8	...
13	Oolah ...	...	9	9	...	1	...

HYDERABAD AFFAIRS.

Nos. of Pergunnas.	Names of Pergunnas.	Number of					
		Talooks.	Villages.	Principals.	Subordi- nates.	Ruined.	Jagheers.
14	Reemgul ... ..	...	70	64	6	...	...
15	Moodkhaid ... ..	...	24	10	...	...	8
16	Indoor ... ..	...	87	80	6	5	1
17	Urdapoor ... ..	...	24	21	...	3	3
18	Beath ... ..	...	35	32	...	9	3
19	Huttah ... ..	...	9	9	...	...	...
20	Nirmul ... ..	...	84	78	6	1	...
21	Banauli ... ..	...	24	24	...	2	...
22	Moodhull ... ..	...	79	79	...	2	...
23	Kodaunpoor ... ..	...	6	6	...	...	...
24	Bysah ... ..	...	105	104	...	2	1
25	Bokur ... ..	...	45	45	...	...	...
26	Rajoorah ... ..	...	19	19	...	...	...
27	Buswunth or Buswunthnuggur.	21	213	208	...	19	5
28	Polliam ... ..	...	119	85	34	4	...
29	Boden ... ..	...	80	80	...	22	...
30	Kosumbait ... ..	...	20	20	...	14	...
31	Vankdee ... ..	...	31	31	...	3	...
32	Manda ... ..	...	9	9	...	...	...
33	Ba'condah ... ..	...	104	91	13	...	...
34	Taimboorny ... ..	...	35	35	...	...	...
35	Bansur ... ..	...	22	22	...	...	...
36	Julkote ... ..	...	...	...	...	...	1
37	Kheir ... ..	...	...	...	...	...	1
38	Issand ... ..	...	...	...	...	...	1
39	Jel'ulpoor ... ..	...	...	...	...	1	...
40	Barrud ... ..	...	1	1	...	...	...
41	Kunnaid Khaid ... ..	...	4	1	3	...	...
42	Latur ... ..	...	51	51	...	...	...
Total		39	3,009	2,590	258	117	157

Kusba Towns and Principal Villages.—The town of Nandair is situated on the left bank of the Godavery river, in latitude $19^{\circ} 8' 58''$ North and longitude $77^{\circ} 26' 50''$ E., and on the highroad from Hyderabad to Hingolee; it has a stone fort, but the walls are in a ruinous state; the streets of the town are clean and neat, crossing each other at right angles. A few wealthy merchants and soucars reside here, who carry on an extensive trade in grain and coarse cloths with Hyderabad, Jaulnah and the adjoining districts. A weekly market is held on Sundays, where grain, &c., and cattle of an inferior kind are exposed for sale. The town may be estimated to contain about 4,000 houses; there are 25 weavers' looms, 4 shops for the manufacture of a coarse description of carpet, 2 of coarse paper, and 200 bazar shops. It is the residence of a Killadar, Amil, Desmook and Despandia, and has a serai for the accommodation of travellers. Adjoining the petta, to the N. W. of Nandair, is a Seikh college built on the spot where Gooroo Govind, a celebrated priest and leader of that sect, was assassinated; the revenues of five villages are attached by the Nizam's Government for the support of this establishment; the whole amount of the Seikh population at this place cannot be much under 4,000 souls. The suburb in which they reside is thickly overgrown with babool trees, affording cover to numerous peafowl, birds held in great estimation by these people.

Owsa, the kusba town and capital of the Owsa pergunna, is situated $18^{\circ} 14' 50''$ N. latitude and $76^{\circ} 32' 18''$ E. longitude. The petta, which is large and populous, is surrounded by a wall, but it is at present in a very delapidated state. The fort, which is situated immediately south of the town, is a neat and well built stone structure, of a square form with a deep wet ditch. The streets of the petta are broad and regular, and the presence of several wealthy soucars who reside here adds greatly to the prosperity of the place.

Latur, in latitude $18^{\circ} 24' 42''$ N., and longitude $76^{\circ} 37' 54''$ E., and kusba of the pergunna, is a large village, of a circular form, and surrounded by a mud wall with a citadel of the same material in the centre. The petta, which is extensive, is about 100 yards to the south of the village. A weekly market is held on Wednesdays, and cattle of good description are frequently exposed for sale. The town consists of nearly 2,000 houses and 20 bazar shops.

Sheradone, the kusba of the Sheradone pergunna, is situated on the highroad from Hyderabad to Darroor. It contains about 700 houses and has 12 bazar shops and a well-supplied weekly market.

Oodgheer, situated in latitude $18^{\circ} 24'$ N., longitude $77^{\circ} 9' 40''$ E., and on the highroad from Hyderabad to Jaulna, is a walled town of considerable extent, with a small fort or citadel at its northern extremity; the last is of an oval form and is well and strongly built of masonry, with a deep ditch surrounding it, that can, if necessary, be flooded from an adjoining tank. The Killadar's house is situated within the fort, where there is usually a guard of 50 Arabs and a few irregulars. The town itself is in a state of decay, nearly one-half of the area within the walls being occupied by ruins, but the population is still considerable, amounting to about 3,000 individuals of both sexes: of these considerably more than one-half are Mahomedans. The hereditary Killadar, a Mahomedan of the Soonee sect, whose ancestors had held the place for nearly two centuries, was dispossessed by the Nizam's Minister in 1838, and is now residing at Dhunnagaon, a neighbouring village. There is a tank within the fort that retains water throughout the year. Oodgheer has 36 subordinate villages, yielding an annual revenue of about 50,000 rupees.

Rajoora, kusba of the Wurwul or Rajoora pergunna, and situated on the highroad from Hyderabad to Jaulna, is situated in latitude $18^{\circ} 42' 18''$ N. and longitude $76^{\circ} 58' 41''$ E. This town contains about 500 houses, has a well-supplied bazar, and a weekly market on Mondays. The Naib, who resides in a small mud ghurry on the eastern face of the town, has under him a considerable force of irregulars, consisting of about 400 Arabs and Seikhs, the same number of Sebundee peons and 200 of the irregular horse.

Soanpett is the kusba town of the Soanpett pergunna, and situated on the right bank of the Godavery river in latitude $19^{\circ} 2' 16''$ N. and longitude $76^{\circ} 31' 25''$ E. The town is enclosed by a wall, has a few bazaar shops and contains about 300 houses.

Mallegaon, situated in latitude $18^{\circ} 49' 8''$ N. and longitude $77^{\circ} 4' 8''$ E., though not a kusba town and of small extent, deserves mention on account of its annual fair, which commences in the early part of November, and is continued for two months and sometimes longer. The first month is usually devoted to the sale of horses, which are brought from the remotest parts of the Deccan, frequently to the amount of ten thousand and upwards; they vary in price from five to one hundred rupees each, and find numerous purchasers from the cities of Hyderabad, Poona, Ellichpoor and Nagpoor. The greater portion of these horses are bred on the banks of the Bhima and Nerbuddah rivers, and many of them are strong, serviceable animals, while others again are of a very inferior description. During the second month of the fair, large quantities of valuable silks and cloths (piece goods from Bombay), jewellery, horse furniture, brass and copper cooking utensils, and a variety of other articles are disposed of. The Naib of the Rajoora pergunna holds his cutcherry at Mallegaon during the fair, and maintains a strong guard for the preservation of order and the collection of the customs, which are levied at the rate of 10 per cent. upon horses and about 5 per cent. on all other goods disposed of during the continuance of the fair. From seven to eight thousand rupees is annually realized by these duties.

Gungakhair, situated on the Godavery in latitude $18^{\circ} 58' 83''$ [?] N. and longitude $76^{\circ} 47' 24''$ E., and on the highroad from Hyderabad to Jaulna, is an extensive walled town with flanking square towers or bastions at intervals. The interior of the town contains many large and commodious houses, some of two and three stories, and generally occupied by wealthy native merchants, many of whom reside in the town and carry on a lucrative trade in gram and other

grahs, which are extensively cultivated in this neighbourhood, and which they export to Hyderabad, Jaulna, and the capitals of the surrounding districts. The town contains about 500 houses and has a well-supplied bazar. There is also a weekly market on Mondays. The post road to Mominabad and Hingolee branches off at this town, and a Post Office writer is situated here for the purpose of sorting and forwarding the packets to their respective stations. During the monsoon two large wooden ferry boats ply across the Godavery at this place.

Polliam, the kusba of the pergunna and residence of the Talookdar, is situated in latitude $19^{\circ} 1' 4''$ N. and longitude $76^{\circ} 59' 30''$ E. It consists of about 400 houses but has no bazar. There is a small mud ghurry north of the village.

Kundahar, situated in latitude $18^{\circ} 52' 9''$ N. and longitude $77^{\circ} 15' 37''$ E., and capital of the pergunna of the same name, is a town of considerable size, with a square stone fort in good repair, and surrounded by a deep wet ditch: this last is filled from a large tank adjoining, and to the westward of the town a few pieces of old and unserviceable artillery are mounted on the ramparts. The town, fort and suburbs together contain about 3,000 houses, of which about one-half are inhabited by Mahomedans, including a garrison of about 300 irregulars, who are principally of that persuasion. Coarse cloths and an inferior description of paper are manufactured at this town to some extent, and it has a weekly market on Mondays.

Laut is situated in latitude $18^{\circ} 57' 57''$ N., longitude $77^{\circ} 20'$ E., and is the kusba of the Surband or Laut pergunna. It is the residence of a Naib. The town may be estimated to contain from 300 to 350 houses, and has ten bazar shops and six weavers' looms. The village is enclosed by a mud wall, and has a weekly market on Thursdays.

Daigloor, situated in latitude $18^{\circ} 32' 57''$ north, and east longitude $77^{\circ} 38' 50''$, and the highroad from Hyderabad to Hingolee, was formerly a town of considerable importance, but does not at present contain more than four hundred houses; this falling off was occasioned by the incursions of the Pindarries, who sacked and destroyed the village in 1816. A Talookdar resides at this place, and has under him a small garrison of about twenty-five horsemen and one hundred irregular infantry.

Kudkah, in latitude $18^{\circ} 28' 50''$ N. and longitude $77^{\circ} 24' 52''$ E., is the capital of the pergunna of the same name, but is at present in a very ruinous state; it is enclosed by a mud wall and contains about three hundred houses.

Barahully, although a kusba or capital of the pergunna, is small and insignificant, consisting of about 100 houses.

Loghan, though the kusba of a pergunna, is in a depressed and ruined state, and the cutcherry has been transferred to Bellaly, a large town in the same pergunna.

Bellaly, at present the principal village in the Loghan pergunna, is situated in latitude $18^{\circ} 48' 26''$ N., longitude $77^{\circ} 37' 35''$ E., and contains about 600 houses; it has a few small bazar shops and weavers' looms, but no market. The cutcherry was transferred to this place on the decay of Loghan, the original kusba town.

Indoor, a hill fort and town, is the capital of the Indoor pergunna, and situated in latitude $18^{\circ} 39' 56''$ N. and longitude $78^{\circ} 8' 24''$ E. The town is of considerable size and importance, containing about 3,000 houses, 20 bazar shops, and 50 weavers' looms, and is garrisoned by a company of the Nizam's regular infantry. The fort is also tolerably large and strong, with a citadel in the centre, and is further protected by a deep trench which encircles the base of the hill, but the interior is overrun with jungle and is the resort of wild animals.

Boden, in latitude $18^{\circ} 39' 29''$ N., longitude $77^{\circ} 56' 52''$ E., is a large and populous town covering an area of about one square mile, and is encompassed by a lofty earthen bank or mound. The town contains about 2,000 houses, 15 bazar shops, and is the residence of several opulent soucars.

Balleconda is in latitude $18^{\circ} 52' 25''$ N., and longitude $78^{\circ} 23' 20''$ E., and on the highroad from Hyderabad to Hingolee. The town, which is large and spacious is surrounded by a wall, which also encloses a fortified hill, but the works are now in a very dilapidated state, though it bears the appearance of former strength. This town is the capital of the Balleconda pergunna.

Beemgul, in latitude $18^{\circ} 42' 1''$ N. and longitude $78^{\circ} 30' 33''$ E., and kusba of the pergunna, was formerly a very extensive and opulent town, but is now greatly reduced, consisting of about 300 houses.

Yelgudpa, in latitude $19^{\circ} 2' 56''$ and longitude $78^{\circ} 46' 23''$, the capital of Yelgudpa pergunna, is a considerable town, containing upwards of 3,000 houses with a good bazar, and weekly market on Tuesdays.

Julkote is a large walled town held in jaghir by Shums-ul-Oomra, it consists of about 1,000 houses and has a bazar in proportion, but no market.

Kotagheer, an ordinary-sized village and kusba of the pergunna, is situated in latitude $18^{\circ} 24' 15''$ north and $77^{\circ} 52' 48''$ east longitude, it consists of about 400 houses, and has a weekly market but no regular bazar.

Banauli, a kusba town in latitude $18^{\circ} 51' 20''$ N. and longitude $78^{\circ} 5' 25''$ E., contains about 1,000 houses, has a good bazar, and weekly market on Tuesdays.

Savergaon, a walled town and kusba, is situated in latitude $18^{\circ} 51' 20''$ N. and $76^{\circ} 54' 30''$ E. longitude; a small stream divides the petta from the town, and both together may be estimated to contain about 500 houses. The principal pagoda at this village, dedicated to Bhowanee, is held in great estimation, and its threshold is thickly studded with a profusion of old coins; the doors are in like manner carved with numerous horse-shoes, the offerings of a constant succession of votaries.

Buswunthnuggur, in latitude $19^{\circ} 19' 48''$ N. and longitude $77^{\circ} 11' 55''$ E., is a large trading town and capital of the pergunna of the same name; the town is encompassed by a mud wall and measures nearly three miles in circumference, it contains about 4,000 houses, has an extensive bazar and a numerous population, many of whom are employed in the manufacture of coarse cloths, paper, and copper and brass utensils. The garrison consists of about 400 Arabs and Seikhs and a small body of Sebundee peons.

Huttah is a large village and the kusba of the pergunna of the same name, lying in latitude $19^{\circ} 19' 52''$ N. and longitude $76^{\circ} 59' 8''$ E., it is encompassed by a low but strongly-built stone wall with large round bastions at intervals. The town contains about 400 houses and has 10 bazar shops.

Kanadkhaid, though a small and insignificant village, is a pergunna of itself. It is situated in latitude $19^{\circ} 9' 7''$ N., longitude $77^{\circ} 2' 47''$ E., and on the left bank of the Poorna river at its junction with a small tributary stream called the Penjergudda.

Barud, in latitude $19^{\circ} 13' 41''$ N. and longitude $77^{\circ} 30' 8''$ E., is a village of about 400 houses, it is a pergunna of itself, and has a weekly market on Tuesdays.

Moodkhaid, a large town and the kusba of the pergunna, is situated in latitude $19^{\circ} 9' 35''$ N. longitude $77^{\circ} 32' 16''$ E. A market is held here on Sundays. Native turbans of a superior texture are manufactured at this town.

Bhokur, a kusba, is in latitude $19^{\circ} 13' 4''$ N. and longitude $77^{\circ} 42' 55''$ E. This town, though large in extent, is thinly populated, the dwelling-houses may be estimated at about 500. In the environs of Bhakur the mhowa tree is very abundant, the flowers are gathered and sold in large quantities for the manufacture of an intoxicating beverage somewhat resembling arrack.

Mhoodull, a large town and kusba, is in latitude $18^{\circ} 58' 38''$ N. and longitude $77^{\circ} 57' 8''$ E. This town consists of about 1,200 houses, has 20 bazar shops, and a market on Friday.

Bysa is a large and well-populated town in latitude $19^{\circ} 6' 35''$ N. and longitude $78^{\circ} 2' 5''$ E., and seat of the pergunna; it is situated about a mile east of the Soodha river. Bysa is encompassed by a high mud wall with a small citadel in the centre, and contains about 450 houses, 18 bazar shops, and has an excellent weekly market.

Basur, a large village and kusba of the pergunna, is in latitude $18^{\circ} 41' 4''$ N., longitude $77^{\circ} 59' 45''$ E. It consists of 1,200 houses, has a good bazar, and weekly market on Tuesdays.

Nirmul, a large and well-fortified town and capital of the pergunna, is in latitude $19^{\circ} 5' 49''$ N., longitude $78^{\circ} 25' 21''$ E., and situated on the highroad from Secunderabad to Nagpore. The town measures in length from north to south

nearly 2 miles by about 6 furlongs, the average breadth, and is encompassed by a strong stone wall, with a broad and deep ditch which retains water throughout the year. In the centre of the town is a lofty rock which is strongly fortified and contains a spacious building, the residence of the Killadar; the town is further defended by numerous outworks on the surrounding heights. The whole of these works are constructed with great judgment, and were erected under the superintendence of French officers formerly in the service of the Nizam. The natural position of the town is also very advantageous as connected with its defence, being in the midst of extensive rice fields, which can at any time be inundated from the large and well-filled tanks adjoining the town. There are several excellent gardens within the walls, producing grapes, oranges and mangoes, all of a very good quality. Matchlocks, swords, copper utensils, coarse cloths, carpets and children's toys are manufactured here to some extent, and find a ready sale at the weekly market, which is held on Mondays and is generally well attended. The garrison consists of one company of Nizam's infantry and a few peons.

Tamboorni, in latitude $19^{\circ} 4' 20''$ N., longitude $78^{\circ} 12' 40''$ E., is a kusba village, surrounded by a high earthen mound with a citadel in the centre. The cutcherry is removed to Mirzapoor. Tamboorni contains about 500 houses, but has no market or regular bazar.

Ola, in latitude $19^{\circ} 10' 56''$ N., longitude $78^{\circ} 6' 46''$ E., is a kusba village but of no extent or importance, consisting only of about 150 houses.

Apparowpet, the kusba of Roosumbait pergunna, is in latitude $19^{\circ} 22' 34''$ N. and longitude $78^{\circ} 3' 15''$ E. Like all the villages in this pergunna (which is principally inhabited by Gonds and other hill tribes) it is in a very miserable state, and, though the seat of the cutcherry and residence of the Amil, does not contain more than 100 wretched huts.

Rajoora Delawulpoor is a small walled kusba town, in latitude $19^{\circ} 2' 11''$ N. and longitude $78^{\circ} 11' 35''$ E., it has a citadel strongly built but now fast falling to decay. About a couple of miles to the west of the town is a large tank which irrigates an extensive sheet of rice cultivation.

Boath, in latitude $19^{\circ} 21' 3''$ N. and longitude $78^{\circ} 21' 30''$ E., though kusba of the pergunna, is a wretched hamlet of about 30 huts inhabited by Gonds.

Vankdee, in latitude $19^{\circ} 13' 46''$ north, and longitude $78^{\circ} 26'$ east, was once a large and flourishing town, but is now in ruins with a very scanty population. The cutcherry has been removed and is now established at Vuddoorpett.

Koodaumpoor, in latitude $18^{\circ} 52' 24''$ north, and longitude $78^{\circ} 15'$ east, is the kusba of the pergunna of that name. It contains about 500 houses but has no bazar or market.

Urdakoor is a well-populated kusba town in latitude $19^{\circ} 17' 11''$ north, longitude $77^{\circ} 25' 5''$ east. It contains about 400 houses and has a well-attended weekly fair which lasts two days, Thursdays and Fridays, and where cattle, cloths, grain and vegetables are exposed for sale.

Mamda, in latitude $19^{\circ} 4' 15''$ north, and longitude $78^{\circ} 34'$ east, is a kusba but in a ruined state, consisting of only ten or a dozen huts.

Jullalpoor, a kusba town in latitude $18^{\circ} 45' 18''$ north, and longitude $78^{\circ} 6' 40''$ east; the town is small, but has extensive and valuable sugarcane plantations in its neighbourhood.

Rivers and Canals.—The Godavery river enters the Circar in latitude $18^{\circ} 59'$ north, longitude $76^{\circ} 43'$ east, near Gungakhair, and washing the northern face of that town proceeds in a north-easterly direction, passing in its course two small villages, Pipri and Nagatna. About ten miles from Gungakhair and near the village of Rajoora it is joined by the Masolee river. From thence, passing numerous towns and villages, it continues in the same course for nearly twenty miles to Dhaloor, where it receives two considerable streams, and still pursuing the same direction is joined by the Poorma river at Kateishwur, from thence it flows with a very serpentine course, the general direction of which is easterly, passing numerous villages, and receiving several small streams, to Nandair, situated on the highroad from Hyderabad to Nagpoor in latitude $19^{\circ} 8' 58''$ north, and longitude $77^{\circ} 26' 50''$ east, and

about forty miles following the course of the stream from Dhanoora up to this point its course is through an open cultivated country, the channel generally sandy and free from rocks or other obstruction. About four miles to the eastward of Nandair the river takes an abrupt turn to the southward, and enters a group of thickly wooded hills projecting from the Sichell or Nurnal range, through which it winds in a southeasterly direction for about forty miles; on quitting them it enters an open and cultivated country, and still follows the same direction for upwards of twenty-eight miles (receiving in its progress the Astna and Secta nullahs, besides numerous smaller streams) up to its junction with the Manjera river, in latitude $18^{\circ} 49' N.$, and longitude $77^{\circ} 55' E.$ From this point the channel is somewhat contracted, with high and precipitous banks, and the general direction, though with a very winding course, is north-easterly to Kaundli, about forty-eight miles. About two miles to the eastward of Kaundli it receives the Sooda, a stream of considerable length and magnitude, and in this neighbourhood its bed is filled with numerous rocks and small islands. From Kaundli it winds in an easterly direction with a constantly varying breadth, receiving several streams and encompassing several islands, some of considerable extent, and in a high state of cultivation, to Yellagudpa, a distance of about sixty-four miles. About two miles to the eastward of this town the breadth of its bed from bank to bank is considerably more than a mile, and contains many islands covered with palm trees, and well cultivated with rice. Six miles to the eastward of Yellagudpa it receives the Koomti, a stream of some magnitude, and after a further course of seven miles in an easterly direction it passes the boundary of the circar and enters the Ranigheer district in latitude $19^{\circ} 3' north$, and longitude $78^{\circ} 58' east$. The principal ferries in this circar are at Gungakhair and Nandair. At each of these towns there are two wooden ferry boats of large and solid but very clumsy construction with high bow and stern. They are propelled by large paddles of a very unwieldy description. Basket boats of a circular form and rude construction ply at the following places,—Takli, Doodgaon, Chinchelmada, Vaulgonda and Loha, all within the limits of the Nandair circar.

No boats are used on this portion of the Godavery for the purposes of traffic, owing to the impetuosity of its current when swollen by the periodical rains, but this might possibly be obviated by the use of boats adapted to meet this difficulty, and some modification of the ordinary basket boat would perhaps be found to answer best. In this case the navigation of the river might be effected for at least four months in the year. The banks of the river throughout its course in this circar are high and precipitous; at its entrance near Gungakhair they are about sixty feet above the bed of the stream, but the channel gets gradually deeper towards the eastern limits of the circar, and for the last seventy miles of its course they are at least one hundred feet above the ordinary level of the stream. During the hot months the whole bed of the river is dry with the exception of a shallow and insignificant stream, the depth of which is seldom above eighteen inches and frequently less, but on the commencement of the rains to the westward, which usually happens towards the end of May, it is filled from bank to bank and flows with a strong and rapid current.

Manjera River.—This river washes a small portion of the southern boundary of the circar. In its limited course past the circar it presents but few peculiarities worthy of remark. The average breadth of the stream is about one furlong, and it flows through a soft black cotton soil. The banks are precipitous, and their general height above the ordinary bed of the stream is about 25 feet. During the rains the river is not fordable, flowing with a strong current, and much discoloured by the vast quantity of earthy matter it holds in solution. The ferries on this river are very inadequately supplied with the means of communication, one small and ill-constructed basket boat being all that is available on the high military road from Secunderabad to Jaulnah: the same is the case at Shivane, on the road from Hyderabad to Moninabad.

Lakes, Tanks, and Reservoirs.—There are no natural lakes in this circar, but the tanks are very numerous in the eastern pergunnas, and some are of great extent. The open country to the westward and in the centre of the circar is, with a few

trifling exceptions, entirely devoid of these useful aids to agriculture. The most remarkable tanks, from their size and capabilities, are found in the Boden pergunna—at Rodroor, Kodaumpoor, Gour, Samoodrum and Yedulooy. Nirmul and Bheemgul pergunnahs are also abundantly provided, and possess many of very considerable size. The large tanks in the abovenamed pergunnas are strongly faced with masonry, and retain water throughout the year, affording an ample supply for the irrigation of very extensive sheets of rice cultivation, which yield two crops annually. Still greater advantages might be derived from the numerous tanks in this circar by the adoption of a regular system of inspection and repair, as many that with a little care might be made to retain water throughout the year sustain much loss from the neglected condition of their banks.

Mines, Minerals, and Manufactures.—A very superior description of magnetic iron ore is found in the hills near Gudkole and in other parts of the Bheemgul pergunna. This ore is obtained in great abundance in the form of a gravel, or coarse sand, by digging a few feet below the surface, and after due preparation, by washing and a separation of the heavier parts, is smelted with charcoal at the following places:—Gudkole, Ravootta, Pundeemudgoo, Konasamoodrum and Mylawaram, all within the Bheemgul pergunna; for this purpose the ordinary conical-shaped clay furnace is generally used. In the preparation of steel from this ore a small proportion of another description of ore, procured in the Indoor district, is employed, and the steel thus obtained is similar to that from which the celebrated Damascus sword-blades are manufactured; it is held in great esteem and finds a ready sale amongst the Mogul and Persian merchants, several of whom are in the habit of visiting the district as purchasers.

Another description of iron ore, of a compact texture and brown colour, but very inferior to that of Bheemgul, is procured in the Loharra pergunna, where many of the small hills are composed almost entirely of this mineral; it is smelted in large quantities in the district, but the iron obtained from it is brittle and bad.

The manufactures in this district are not by any means extensive or important. Coarse cloths are fabricated at almost every village of any size in the circar, but generally for home consumption, though some few are bartered for other commodities at the weekly village markets; there is, however, no export of this article to any extent. Paper of a coarse description is manufactured at Nandair, Nirmul and Buswuntnuggur, and is exported in small quantities from all these places. Common striped carpets or settringees are made at Nandair and Nirmul, but to a very limited extent. Copper and brass cooking utensils are manufactured at Buswuntnuggur and Nirmul, and meet with a ready and extensive sale at the annual fair at Mallegaon, in the Rajoora pergunna. A very good description of muslin turbans, much used in the Nandair and adjoining districts, is made at Moodkhaid. Swords and matchlocks are made at Nirmul, but are seldom disposed of out of the district; there is also some little trade in silks and cloths, which are exported from Nirmul to Hingola; children's toys in small quantities are also made at Nirmul.

Agricultural Products.—Rice is abundantly produced in the Nirmul and its subordinate pergunnas, and in favourable seasons is exported in considerable quantities. Dry grains, as (*Holcus saccharatus*) cholam, (*Holcus sorghum*) jowary, (*Holcus spicatus*) bajery, (*Satyrum aphaca*) chenna, (*Cynosurus concames* [?]) raggy, (*sesamum orientale*) til, (*Crotalaria juncea*) sun, Bengal hemp, and (*Ricinus communis*) the castor oil plant, and a variety of oil seeds are cultivated to a great extent in the northern and western pergunnas, and are exported in large quantities to Hyderabad, Poona, and other capitals. Cotton is rather extensively cultivated in the western portion of the circar, and is an article of export. Opium is grown in small quantities in many parts of the circar, but merely for home consumption or for sale within the district. Tobacco is very generally cultivated throughout the district, in small gardens adjoining the villages, but the produce, though disposed of in the district village markets, is rarely made an article of export. Sugarcaue is cultivated to some extent in the eastern pergunnas, and an inferior brown sugar is manufactured at Nandair and Nirmul, and exported in small quantities.

Cattle and Animals.—The circar is tolerably well stocked with domestic animals; the draught and carriage bullocks, though somewhat small, are strong and hardy, and the supply is kept up from large herds maintained solely for breeding, and pastured in the jungles of the eastern pergunnas. Sheep and goats are tolerably abundant in the open plains, but less so in the jungly parts of the district, where they do not thrive so well, from the greater moisture of the climate, and the rankness of the vegetation. The buffalo is common in the district, but is more in demand for agricultural purposes in the eastern pergunnas than elsewhere. The wild animals in this circar are the tiger, cheeta, bear, elk, bison, neelgae, antelopes, spotted deer, jackals, foxes, hares and other small game commonly found in the Deccan, as partridges, common grey and painted rock pigeon or Indian grouse, a variety of quail, snipe, floriken, and a few bustards, ducks, teal and other water fowl are very numerous on the tanks in the eastern pergunnas.

Forests, Woods and Jungles.—The eastern portion of the circar is very thickly wooded, but the only description of trees that are used in traffic or applied to any useful purpose are the following, viz., the teak, yepee, toomkee, sirman, undooga, sundrika, babool, and mhowa. The teak tree is very extensively diffused in the jungles, but it is generally of a stunted growth, and unfit for the ordinary uses to which that tree is generally applied; however, in the forests of the Nirmul pergunna bordering on the Godavery river it attains a larger size, the girth of the full-grown tree generally averaging from four and a half to five feet, but seldom exceeding that measurement; the timber is roughly prepared and exported in large quantities to Hyderabad and Jaulna, where it is used as a building material.

The yepee tree, producing a hard red wood, is also common in the Nirmul forests; the timber is generally used for posts and rafters in the construction of native buildings, and for implements of husbandry, but is not an article of general traffic.

Toomkee (*Dalbergia latifolia*), producing the timber commonly known as blackwood, is found in the Nirmul forests, though not very abundant, and of an inferior growth; it is, however, converted into timber, and small quantities are exported to Hyderabad and elsewhere.

Sirman, a large tree yielding a gum, which is used by the natives for medicinal purposes; the wood, which is very hard, is generally used in the construction of native carts.

Undooga (*Erythrina indica*).—This tree grows to a considerable size; the wood is of a light colour and very soft texture; it is used by the natives in the construction of sword scabbards and other light articles.

Soondree, a small thorny tree, chiefly used for the manufacture of charcoal.

Babool.—This tree is common in all parts of the circar, and is much used in the construction of ploughs and other agricultural implements.

The mhowa tree (*Bassia latifolia*).—This tree is very abundant in the forests around Nirmul, especially in the Bhoker pergunna, where the flowers are collected in great abundance, and an intoxicating liquor somewhat resembling arrack is manufactured therefrom; these flowers are sometimes dried and pulverized and used as a substitute for grain.

The neem tree (*Melia Azadirachta*) is also very common in the jungles of the eastern pergunnas; its wood is not much esteemed, but the bark is very generally used as a febrifuge and tonic by the native medical practitioners.

Mountains and Hills.—The whole of the eastern portion of the circar is hilly; the prevailing form of these hills is a low flat table (of basaltic rock) with the sides and summits covered with jungle and coarse rank grass. In the Sichel or Nirmul range, which extends across the circar along the north-eastern boundary, the elevation is considerable, rising to about twelve hundred feet above the plain; the hills in this group are covered with a dense and lofty forest, and fossil shells and other remains are frequently found upon their summits; their general direction is from N. E. to N. W., with a very abrupt and precipitous descent to the southward. Another but less conspicuous range, and having the same general direction as the preceding, extends across the circar, passing a little to the northward of Oodgheer, and terminating about fifteen miles to the north-westward of that town; this range

is barren and rugged with a general elevation of about five hundred feet above the plains. A third group of low jungly hills, forming the second step in the descent to the Godavery from the southward, intersects the circar parallel to and about thirty-eight miles to the northward of the Oodgheer range; it passes beyond the eastern boundary, and is continued in the Darroor Circar; besides the above-named there are several smaller ranges and detached hills dispersed over the surface of the circar, but none of sufficient extent to require a detailed description.

Soil and Climate.—The soil of the arable land in this circar is, with a few trifling exceptions, composed of a rich black loam, commonly known as cotton ground; it is extremely productive and apparently inexhaustible, yielding a constant succession of crops and requiring but little or no attention to sustain its fertility by artificial means; in both the wet and dry cultivation two crops are annually realized without any difficulty. The seasons here, as elsewhere in the Deccan, may be divided into hot, cold and rainy; the first commences early in November and terminates about the end of February; from this period until the middle of June very hot weather prevails, with high and burning winds. The rains usually set in about the middle of June and are generally over by the middle of October. Fevers are very prevalent both in the open and hilly country during the cold season, but they are of a more deadly character in the last-named portion of the circar, especially in the jungles of the Nirmul pergunna; in the open country these fevers are probably occasioned by the great and sudden changes in the atmosphere, the thermometer in a tent frequently ranging from 40° to 80° or 85° in the course of the day; in the jungly districts, where marsh miasma and malaria is so prevalent, it is perhaps owing to both these causes conjoined.

Population.—As direct inquiry upon this subject is not authorized in the dominions of the Nizam, any estimate of the number and nature of the population must necessarily be vague and imperfect, but, judging from the imperfect data procured, the entire amount of males and females cannot be much under 80,000; of these by far the greater portion are Mahrattas, the whole of the open country in the western portion of the district being almost exclusively occupied by that people, excepting only a few Mangs or Dheirs attached to each village, and a still smaller proportion of Mussulmans; these last are not found in any numbers but in the larger towns, and in their most favourite localities they seldom amount to one-third of the population. In the hilly and jungly country to the eastward the Teloo goo is the predominating caste, but with a very considerable proportion of Mahrattas intermixed. To the north-eastward in the wild and unreclaimed forests of the Nirmul sub-division of the district the scanty and miserable population is composed almost entirely of Goonds, who drag on a wretched existence, depending in a great measure upon the roots, game and other products of the jungles for their subsistence, occasionally purchasing the ordinary necessities of life by the sale of honey, wax, &c., collected in their forests. Along the northern, eastern and western boundaries of the circar a few Bheels are found, but they are not numerous. A wealthy and thriving colony of Seikhs is established at Nandair, to which town they are attracted by the establishment of a college under the patronage of Chundoo Lall, the Minister at Hyderabad. Small bodies of the same caste are found in most of the large towns in the district, forming a part of their garrisons; besides the above, there are several itinerant tribes who wander about the circar in the pursuit of their several avocations as khakaddies or basket-makers, khusars or blacksmiths, and wodavars or tank-diggers; all these wandering tribes have but a very indifferent reputation for honesty.

Roads.—Three principal roads pass through the circar—one from Hyderabad to Jaulnah via Oodgheer and Gungakhair, another from Hyderabad to Nagpore by Nandair and Hingolee, and a third to Nagpore passing through Nirmul; these roads are for the most part mere beaten tracts, are unprovided with bridges, and bear no appearance of regular construction. The particulars of each are given in the annexed tables.

(Signed) H. MORLAND, Captain,
In charge Hyderabad Survey.

DESCRIPTION OF THE MAIKER CIRCAR.

The Maiker Circar is bounded on the north by Nurnallah, on the east by Bassin, south by Patra and Jaulnah, and on the west by Baythulwaddy and Dowlutabad Circars ; the figure is of a rectangular form, and comprises within its boundary an area of 3,581 $\frac{3}{4}$ British square miles, 22 of which is composed of isolated patches of territory belonging to and under the management of the Gwalior Government ; detached portions of the Baythulwaddy Circar, amounting together to 33 square miles, also fall within the general boundary of this circar.

Pergunnas.—It is sub-divided into 14 pergunnas, viz., 1, Havalee ; 2, Wakud ; 3, Rissood ; 4, Futteah Kheldah ; 5, Mulkapoor ; 6, Ghaut Boree ; 7, Jafferabad ; 8, Umrapoor ; 9, Davulghaut ; 10, Sirpoor ; 11, Garoomattergaon ; 12, Shevly ; 13, Loonar ; and 14, Sindkhair.

Havalee Pergunna consists of 105 villages, 23 of which are in ruins.

Wakud pergunna consists of 20 principal villages, 1 of which is ruined.

Rissood pergunna consists of 36 principal villages, 1 of which is ruined.

Futteah Kheldah pergunna consists of 78 villages, of which 11 are ruined.

Mulkapoor pergunna contains 54 villages, of which 9 are in ruins.

Ghaut Boree pergunna contains 31 villages, 4 of which are now in ruins.

Jafferabad pergunna contains 116 principal villages, of which 3 are in ruins.

Umrapoor pergunna consists of 59 principal villages, 3 of which are ruined.

Davulghaut pergunna consists of 69 principal villages, 3 of which are in ruins.

Sirpoor pergunna contains 60 principal villages, of which 10 are in ruins.

Garoomattergaon pergunna consists of 51 principal villages, 23 of which are ruined.

Shevly pergunna contains 64 principal and 2 subordinate villages ; 14 of the former are ruined.

Loonar pergunna consists of 56 villages, of which 18 are ruined.

Sindkhair pergunna contains 72 villages, 13 of which are ruined and deserted.

Principal Towns and Villages.—The following are the principal towns and villages in this circar :—Maiker, Sooltanpoor, Burra Unjenny, Chota Unjenny, Dhonegaon, Lonee, Phailgaon, Wakud, Rissood, Burr, Mope, Futteah Kheldah, Mulkapoor, Mydavulgaon, Sainderzunna, Bebee, Ghaut Boree, Surdkhair, Rajah Davulgaon, Lonegaon, Jafferabad, Umrapoor, Shevly, Sirpoor, Garoomattergaon, and Loonar.

Maiker, the cusbah, is in latitude 20° 9' 25" north, and longitude 76° 37' 63" east, on the left bank of the Payn Gunga river and on the dāk road from Bombay to Nagpoor ; it was formerly a large and thriving town, containing from 2,000 to 3,000 houses, two-thirds of which are now a mass of ruins ; it has 40 bazar shops, 200 weavers and 100 dyers.

Native cloths of coarse and fine texture are manufactured here ; the town is surrounded by a low wall now in a very dilapidated state ; it is garrisoned by 100 irregulars, 40 horsemen and 80 Seikhs.

A market is held on Mondays and Thursdays ; a Mahomedan tomb of some size and celebrity is situated about 2 furlongs east of the town.

Sooltanpoor, in latitude 20° 5' 27" north, and 76° 33' 40" east longitude, is a village of about 500 houses ; it is surrounded by a mud wall and is situated on the dāk road from Bombay to Nagpoor. This town and the surrounding country within a circumference of about 6 $\frac{1}{2}$ square miles is under the Government of Gwalior.

Burra Unjenny, in latitude 20° 4' 10" north, and longitude 76° 31' 20" east, is a small town on the dāk road from Bombay to Nagpoor ; it is a halting stage for troops and has eight or ten bazar shops.

Chota Unjenny, a walled town in latitude 20° 10' 50" north, and longitude 76° 42' east, is situated on the dāk road from Bombay to Nagpoor.

Dhonegaon, a village of from 450 to 500 houses with a proportion of bazaar

shops, is situated on the highroad from Bombay to Nagpoor in latitude $20^{\circ} 11' 22''$ north, and $76^{\circ} 46' 8''$ east longitude.

Lonee, a large walled town with a well-supplied bazaar, is situated on the highroad from Maiker to Ballapoor in latitude $20^{\circ} 15'$ north and $76^{\circ} 43' 25''$ east longitude.

Shailgaon, once a large and populous town but now greatly reduced, consisting of not more than 80 or 100 houses; it is situated on a table height in latitude $20^{\circ} 15' 20''$ north and longitude $76^{\circ} 46' 45''$ east.

Wakud is in latitude $20^{\circ} 2' 30''$ N. and longitude $76^{\circ} 44' 20''$ E.; it is surrounded by a mud wall, and, though a cusba town, consists at present of not more than 80 houses and 3 bazaar shops.

Rissod is a populous and thriving town and contains about 800 houses; it is situated in latitude $19^{\circ} 8' 28''$ north and longitude $76^{\circ} 49' 55''$ east. A market is held here on Thursdays, when cattle and all kinds of grain, coarse cloths, cotton carpets and country blankets are exposed for sale.

Sugarcane and betel are cultivated to a considerable extent in the immediate vicinity of this town.

Burra is a large walled town situated on the highroad from Jaulnah to Hingolee in latitude $19^{\circ} 56' 35''$ north and longitude $76^{\circ} 45' 43''$ east, has a well supplied bazaar, and is situated in a thriving and highly cultivated country.

Mohe, in latitude $19^{\circ} 57' 20''$ north and $76^{\circ} 42' 10''$ east longitude, is situated on the highroad from Jaulnah to Hingolee, and consists of about 600 huts and has a good bazaar.

Futteah Kheldah is situated in latitude $20^{\circ} 12' 30''$ north and longitude $76^{\circ} 26' 40''$ east. It was formerly a large and populous town, extending over an area of ten square furlongs, but is now greatly reduced, and, like all the villages in this pergunna, composed of a few wretched huts; an annual fair is, however, still held in the vicinity of Futteah Kheldah, which lasts for upwards of three weeks, and attracts a large concourse of traders and others from the surrounding districts; cattle, cloths of various descriptions, grain, and a few valuable commodities such as Delhi and Cashmere shawls, precious stones, &c., are exposed for sale.

Mulkapoor, a walled town of some extent and in a populous and thriving condition, is situated in latitude $20^{\circ} 24' 40''$ north and longitude $76^{\circ} 23' 3''$ east; it is surrounded by a mud wall, the area within occupying upwards of a square mile. Grain and vegetables, coarse cloths, cumlies or country blankets, &c., are exposed for sale at the weekly market held on Thursdays.

Mydavulgaon, situated on the bank of a large stream, in latitude $20^{\circ} 5' 25''$ north and longitude $76^{\circ} 13' 37''$ east, is a walled town, well inhabited, and has several bazaar shops. A market is held here on Sundays.

Sainderzunna, in latitude $20^{\circ} 7' 50''$ north and longitude $76^{\circ} 26' 15''$ east, once a large and populous village with a fort and pettah, is now in a most dilapidated and ruinous state.

Bebee, in latitude $20^{\circ} 1' 20''$ north and longitude $76^{\circ} 25' 16''$ east, is a large walled town, situated on the dāk road from Bombay to Nagpoor, and is a halting stage for troops.

Ghaut Boree, cusba town, in latitude $20^{\circ} 19' 5''$ north and longitude $76^{\circ} 44' 52''$ east, is situated at the foot of a rugged table height on the highroad from Maiker to Ballapoor; it was once a populous town, but is at present in a declining state and but thinly inhabited.

Sindkhair is a cusba town, in latitude $19^{\circ} 57' 30''$ north and longitude $76^{\circ} 10' 20''$ east on the dāk road from Jaulnah to Nagpoor. This was once a large and flourishing place, but is now much decayed; it is surrounded by a ruinous wall built for the most part of burnt brick and mud, and has several two-storied houses and a small citadel of the same material, but all in a very ruinous and dilapidated state. The area within the walls is about half a square mile, but the greater portion of this space is occupied by ruins and rubbish. There is a large and deep tank, about one mile west of the town, which retains water throughout the year. In the bund or embankment, which is faced with solid substantial masonry, is a well of great depth and singular construction, having a succession of circular galleries communicating

with each other by cut stone steps, and admitting of descent to the water, which is remarkably pure and good.

Rajah Davulgaon, in latitude $20^{\circ} 1' 10''$ north and longitude $76^{\circ} 5' 45''$ east, is a populous and thriving town, containing from 700 to 800 houses; it is enclosed by a stone wall, and south of the town is a neat stone ghurri in good repair. An annual fair is held at this town, at the conclusion of the Dusserah festival, which lasts 15 or 20 days, and attracts great numbers from the surrounding districts; the commercial transactions on these occasions yield a revenue of from Rs. 2,500 to Rs. 3,000, but a much larger sum is realized by the Brahmin in charge of a celebrated Hindoo temple in the town dedicated to Balajee; the aggregate amount of the offerings at this shrine during the continuance of the fair generally amounts to as much as Rs. 60,000, and is sometimes considerably more.

Lonegaon, in latitude $20^{\circ} 3' 30''$ north and longitude $75^{\circ} 56' 45''$ east, is a considerable village on the highroad from Jaulnah to Ajunta; it is surrounded by an extensive but ruinous wall, and a large portion of the space within is waste and unoccupied; the number of houses may amount to about 400, and it has 5 or 6 bazaar shops.

Jafferabad, situated at the junction of the Poorna and Kaylnah river and on the highroad from Jaulnah to Nagpoor, in latitude $20^{\circ} 11' 35''$ north and longitude $76^{\circ} 3' 35''$ east, is a large and populous town surrounded by a fortified stone wall, now in a very dilapidated state, but a small stone ghurri or citadel within the town is in very fair order; though much reduced in extent and population, this town still contains about 1,000 houses; a large proportion of the inhabitants are Purdasees and Rajpoots, and there are also a few Pathans; it has a well supplied weekly market on Fridays.

Umrappoor, a cusba town, in latitude $20^{\circ} 23' 30''$ north and longitude $76^{\circ} 29' 50''$ east, contains about 600 houses, with a population of about 3,000 inhabitants, and has a well supplied bazaar, and a market on Thursdays.

Shevly, in latitude $19^{\circ} 49' 40''$ north and $76^{\circ} 18' 27''$ east longitude, is a cusba town but of no great extent or importance; it is surrounded by a mud wall, and has an interior ghurri or citadel composed of the same material.

Sirpoor, a cusba and market town, in latitude $20^{\circ} 10' 40''$ north and longitude $77^{\circ} 0' 27''$ east; it contains about 400 houses, and is surrounded by a mud wall; common cloth, cumlies or country blankets and a coarse description of chintz is manufactured at this town.

Garoomattergaon, in latitude $20^{\circ} 33' 5''$ north and longitude $76^{\circ} 29'$ east, though a cusba town, is ruined and deserted.

Lakes, Tanks and Reservoirs.—Loonar, a cusba town, in latitude $19^{\circ} 59' 45''$ north and longitude $76^{\circ} 33' 59''$ east, bears evident traces of having once been a place of some size and importance, but it is at present greatly reduced, and owes what little celebrity it retains to a remarkable salt lake in its immediate vicinity. This singular chasin is of a circular form, and nearly five miles in circumference at the upper margin; it appears to have been formed by the subsidence of the whole area within the limits above mentioned to the depth of about 500 feet below the general level of the surrounding country; with the exception of a deep and broad ravine, through which a small stream flows into the lake from the northward, its exterior margin is tolerably regular and well defined, but slightly elevated as if by some explosive power, shutting out the view of the lake when approached from the surrounding country until the very crest of the precipitous escarpment is reached, when this vast natural basin with its deeply-seated lake and wild forest scenery bursts at once upon the view. By competent judges it has been pronounced to be the crater of an extinct volcano, though no traces of lava, scoria or other volcanic products are now to be met with, unless the basaltic rocks by which it is enclosed, and which are so general in this part of the Deccan, can be considered such; the sides of the crater are very precipitous and covered with brushwood and jungle and long grass, harbouring numerous tigers and other animals. The bed of the lake, which is bordered by a thick grove of palmyra and tamarind trees, is composed of mud strongly impregnated with muriate of soda, and an equal admixture of carbonate of soda and other salts in very minute quantities.

The water of the lake covers a circular area of about 3 miles in circumference during the prevalence of the monsoon, but scarcely one-half of that extent in the hot months. The salt, which forms in layers under the mud in the bed and margin of the lake, is collected, with the aid of a kind of dredging machine of the rudest description, towards the end of the hot season, when the depth of the water seldom exceeds 3 feet in any part. It would appear from the concurring testimony of those residing in the neighbourhood that the quantity of salt collected is gradually on the decrease, owing to a neglect of the precautions formerly used to prevent too great an influx of water by damming up a portion of the numerous small streams which descend into the lake; it is said to have once yielded an annual revenue of 20,000 rupees and upwards, but is at present farmed out for an annual payment of 3,000 Hyderabad rupees. The salt is much used in the manufacture of an inferior kind of soap, glass bangles, and for the washing and dyeing of chintzes and other cloths, and is exported in considerable quantities to the surrounding districts.

The principal stream which enters the lake from the northward takes its rise within a carefully enclosed pagoda near the upper margin of the lake, though the credulous Hindoo is taught to believe that it has its origin in the holy city of Benares. The water of this stream is sweet and pleasant to the taste, and several wells and springs of perfectly fresh and wholesome water are to be found around the margin and below the level of the water of the lake, though that of the lake itself is intensely salt and bitter, and fish will not live in it. The watchmen who are retained to guard the salt when collected suffer greatly in health from the unwholesome exhalations of the valley, and say that they are seldom able to remain longer than three months without ascending for change of air; their jaundiced and haggard appearance fully bears out this statement, and a certain unpleasant effluvia is at all times perceptible, especially within the limits of the saline efflorescence with which the lake is encompassed to a distance of some seventy or eighty yards beyond the water-mark. 13 ounces of water taken from the lake at the conclusion of the rains gave on evaporation 2 drachms of saline matter consisting of muriates, sulphates and carbonates of soda and potash.

With the exception of a large tank about one mile south of the village of Rissood, and which retains water throughout the year, there are no other pieces of water of any extent or importance in this circar. The irrigation of the garden cultivation is generally effected from bowlies and wells; the dry cultivation, which is very extensive and general, including wheat, jowary, bajary, cotton, chenna and a variety of oil plants, is entirely dependent upon the periodical rains.

Mountains and Hills.—The surface of this circar is generally hilly; towards the south, offshoots from the Sichel range, which terminates to the west in the neighbourhood of the lake of Loonar, extend over a large extent of country in the form of low and very broad table heights; the same features prevail on the western and north-western boundaries. Towards the centre of the district the country is open and undulating, but on the eastern and north-eastern boundaries it is very rugged and broken up by spurs and projections from the Ajunta range. The geological structure of all these hills and of the circar in general is that of the prevailing rock in this portion of the Deccan—basalt in all its varieties and modifications.

Rivers.—The Poorna river enters the circar in latitude $20^{\circ} 10' 2''$ north and longitude $75^{\circ} 53' 14''$ east, and pursuing a course the general direction of which is easterly, and receiving numerous small streams in its progress, it meets the Kailna river, $13\frac{1}{2}$ miles from its entrance into the circar, in latitude $20^{\circ} 11' 25''$ north and longitude $76^{\circ} 3' 25''$ east, close to the town of Jafferabad, where it is crossed by the highroad from Bombay to Nagpoor, thence onwards through a hilly and rugged country in the same direction to Unmunthkhaid, a distance of about $5\frac{1}{2}$ miles in a direct line from Jafferabad, from thence it takes an abrupt turn to the southward, and proceeds in the same course to its junction with a small stream about a mile south of the village of Gurvan and $5\frac{3}{4}$ miles from Unmunthkhaid, it then assumes a south-easterly direction

and continues the same up to the eastern boundary of the circar, receiving in its course the Umnah river in latitude $20^{\circ} 3' 15''$ north and longitude $76^{\circ} 15' 10''$ east, and numerous smaller streams. This river retains water throughout the year, though in a very limited quantity during the dry season; in the rains it is occasionally full from bank to bank, but runs off rapidly, and is seldom unfordable for many days together. The banks are high and precipitous throughout its course, and generally composed of a soft friable soil; the bed, with a few exceptions, is sandy and unencumbered with rocks or other impediments. There are ferry boats at Rahira, near which village it is crossed by the dāk road from Bombay to Nagpoor, but they are reserved exclusively for the use of the Government dāk runners.

The Payn Gunga river takes its rise from the summit of a high table ridge in latitude $20^{\circ} 32' 5''$ north and longitude $76^{\circ} 1' 30''$ east, and flows in an easterly course through a fertile valley to the town of Davulghaut, distant $10\frac{1}{2}$ miles, thence its general course becomes south-easterly, and it receives several small mountain streams in its progress to the town of Ootradepett, distant $19\frac{1}{4}$ miles; keeping in the same course it receives the Lamdy river in latitude $20^{\circ} 11' 35''$ north and longitude $76^{\circ} 36' 45''$ east, distant $25\frac{1}{4}$ miles, then taking a southerly course for 3 miles, and passing west of the town of Maiker, it is crossed by the dāk road from Bombay to Nagpoor, close to the village Sarungpoor, where there is a ferry boat for dāk runners; again taking a south-easterly course, and receiving numerous small streams in its progress to the eastern boundary, it quits the circar in latitude $20^{\circ} 2' 50''$ north and longitude $77^{\circ} 0' 40''$ east. The distance traversed in all its windings from its entrance to the eastern boundary of this circar is $91\frac{3}{4}$ miles. The banks throughout its course are low, and the bed in most parts very rocky.

Kaylnah River.—This river enters the circar in latitude $20^{\circ} 27' 28''$ north and longitude $75^{\circ} 38' 22''$ east; it descends in a south-easterly direction through a rugged valley, passing the villages Pluttee on the left and Chichpoor on the right bank, and receiving numerous small hill streams in its course; quitting the valley at 5 miles from its entrance into the circar, it passes through a more open and fertile country, and quits the circar in latitude $20^{\circ} 20' 20''$ north and longitude $75^{\circ} 46' 15''$ east, after a course of $15\frac{1}{2}$ miles.

It re-enters the circar in latitude $20^{\circ} 14' 10''$ north and longitude $75^{\circ} 53' 15''$ east, $\frac{3}{4}$ of a mile west of the village Kodelly; it then forms the boundary between the circars of Jaulnah and Maiker for $2\frac{1}{2}$ miles; quitting the circar for a mile it again enters it at 6 furlongs south of the village of Assaye, and then proceeds south-easterly between the villages Burrood on the left and Pipplegaon on the right bank; continuing in an easterly direction, it forms a junction with the river Inah, $3\frac{1}{2}$ miles from the village of Assaye; thence it proceeds in a south-easterly course and is met by a large stream on the left and nearly opposite to the village of Jowkhaid, $4\frac{1}{2}$ miles below Assaye. Leaving the village it winds north-easterly for a short way and then descends south-easterly, passing between the villages Unmunthkhaid on its left and Burkhaid on the right bank, thence in an easterly direction passing between Sowerkhaid and Yakli $1\frac{1}{2}$ miles from the last named village, and empties itself into the Poorna river close to the town of Jafferabad, in latitude $20^{\circ} 11' 25''$ north and longitude $76^{\circ} 3' 25''$ east. The banks of this stream are high and steep, its bed for the most part composed of sand or mud; it retains water for about eight months in the year.

Munu River.—This small stream takes its rise on the table hills near Ghaut Shevly, a mile west of the village Shailsoora, in latitude $20^{\circ} 25' 30''$ north and longitude $76^{\circ} 22' 30''$ east; it descends easterly through an open fertile valley to the town of Umdapoor on its right bank, leaving which it proceeds north-easterly through a deep and rugged valley flanked by high table ridges for 3 miles, thence it takes a south-easterly course and meets a considerable stream close east of the village of Maidiny; it keeps in the same general course at the foot of a low ridge of table hills for $4\frac{1}{4}$ miles, then assumes an easterly course for 3 miles, when it receives another considerable stream, thence takes a north-easterly direction, continuing through a wild hilly country to the boundary of the circar in latitude $20^{\circ} 24' 25''$ north, longitude $76^{\circ} 39' 55''$ east.

Umnah River.—This small stream has its origin on the table heights near Needgungee in latitude $20^{\circ} 0' 30''$ north and longitude $75^{\circ} 58' 40''$ east, and after a course of 22 miles in an easterly direction empties itself into the Poorna river near the village of Sattagaon in latitude $20^{\circ} 3' 15''$ north and longitude $76^{\circ} 15' 10''$ east.

The Dammah river enters the circar in latitude $20^{\circ} 17' 50''$ north and longitude $76^{\circ} 4' 30''$ east, half a mile south-east of the village Irlah; it descends in a southerly course through an open and fertile valley, passing by several villages, and receiving the waters of numerous streams, it joins with the Poorna river after a course through the circar of 8 miles, in latitude $20^{\circ} 11' 40''$ north and longitude $76^{\circ} 7'$ east.

Forests, Woods and Jungles.—The hills and ravines on the eastern and southern boundaries of this circar are in general thickly wooded, but the trees of which these woods are composed, consisting of a description of stunted and bastard teak, babool (*Acacia arabica*), Soondree (*Heri liera* [?] *robusta*), mohwa tree (*Bassia latifolia*). The Yapa tree, and a variety of low thorny shrubs do not attain any great size; the first-named, from its stunted growth, can be applied to but few useful purposes; the babool tree is extensively used in the construction of ploughs and other implements of husbandry; an intoxicating spirit is distilled from the flowers of the mohwa tree, they are also occasionally dried and pounded and used as food. A tree called the Yapa is also much employed in the construction of native buildings and for agricultural implements.

Population.—The population of this Circar may be roughly estimated at 30,000, composed of Hindoos of various classes, Mangs, and Dhers, but the bulk of the population are Mahrattas; considerable numbers of Mahomedans are resident in the larger towns, and a few Seikhs; these two last-named sects are generally employed as sepoys or sebundies by the talookdar of the district and other local authorities; some Bheels are to be met with amongst the hills towards the northern boundary, but they are not numerous: that part of the population inhabiting the Sichel hills are a turbulent and lawless race, in spite of the stringent and summary measures taken to suppress their tendency to violence and outrage; the same was formerly the case amongst the Bheel tribes in the north and north-western boundaries of the Circar, but owing to the judicious arrangements of Captain Johnston, H. H. the Nizam's service, in command of hill rangers stationed at Booldanah, and composed entirely of Bheels, this portion of the circar is now quiet and undisturbed, and acts of robbery or violence are matters of rare occurrence.

Cattle and Animals.—The ordinary domestic animals, viz., cows, buffaloes, sheep, &c., are moderately abundant; carriage and draught cattle are also common, but poultry is scarce and dear; of wild animals there are tigers, cheetas, hyænas, wolves and a few bears; neilgae, spotted deer, the common and goat antelopes are also to be found; the larger beasts of prey were very numerous a few years ago, especially in the vicinity of the lake of Loonar, but are now much less so, having been greatly thinned and destroyed by sporting parties from the cantonments of Jaulmah and Hingolee.

Roads and Passes.—The highroads through this circar are described in tables No. 1 and No. 2. The Lackenwarry ghaut is a short pass on the highroad from Jaulmah to Nagpoor by Jafferabad and Umrappoor; the descent commences at a barrier gateway near the boundary of the circar, about two and a half miles south-west of the town of Lackenwarry, and terminates at a small stream about three-quarters of a mile from the crest of the ghaut; the descent is very gradual and the road is perfectly practicable for wheeled carriages or guns, and has recently been repaired and put in order by Shapoorjee, Parsee, late Talookdar of Ballapoor; a small guard on the part of the Talookdar of Ballapoor is stationed at the gateway above mentioned. There are several footpaths in the hills to the westward of the ghaut leading to the valley of Berar, and a road has been lately constructed through the hills between Booldanah and Khamgaon, which is practicable for cattle and wheeled carriages.

H. MORLAND, Captain,
In charge Hyderabad Survey.

MEMOIR OF THE BAYTHULWADDY CIRCAR.

The Baythulwaddy or Baythulbarry Circar is a small hilly district situated on the Adjunta hills, and is comprised within $20^{\circ} 11'$ and $20^{\circ} 40'$ north latitude, and $75^{\circ} 33' 48''$ and $76^{\circ} 8' 35''$ east longitude; its greatest length from east to west is $37\frac{1}{2}$ miles, and greatest breadth from north to south $33\frac{1}{4}$ miles. The figure is of a rectangular form, and its general boundary encloses an area of $668\frac{3}{4}$ square miles, of which $11\frac{1}{2}$ are isolated portions of the Jaulna Circar. It is bounded on the north by Kandeish, on the east by Maiker and Nurnalla Circars, on the south by Jaulna and on the west by Dowlutabad Circar. The greater portion of this circar is barren and unproductive, owing to the rocky nature of the soil and the general scarcity of water, there being few artificial tanks or reservoirs, though the features of the country offer every facility for their formation.

Pergunnas.—This circar is subdivided into ten pergunnas, viz. :—

1. Baythulwaddy or Havalee pergunna contains only one village, and at present is ruined and deserted.
2. Adjunta, containing 35 villages, 9 of which are ruined.
3. Shevlee, containing 3 villages.
4. Chicklee, consisting of 5 principal and 4 subordinate villages and 2 in ruins.
5. Oondengaon contains 32 inhabited and 2 deserted villages.
6. Shevaneer pergunna has 15 principal and one subordinate village; 2 of the former are ruined and deserted.
7. Chandole has 13 inhabited villages.
8. Dhar consists of 18 inhabited villages.
9. Dhowda has 40 inhabited villages.
10. Sowlutbarra has 9 principal and one subordinate village; 5 of the former are ruined and deserted.

The total number of villages in this circar is 188, of which number 21 are ruined and deserted, and a great proportion of the others are mere hamlets consisting in many instances of a few miserable huts.

Baythulwaddy, the capital of the circar, is now utterly ruined and deserted; the hill fort south of the town is, however, garrisoned by a few irregulars. The only towns of any size or importance are the following :—

Principal Towns and Villages.—Adjunta, Chandole, Burra Muslah, Ghant Shevlee, Chicklee, Oondengaon, Shellode, Shevaneer, Dhar, Dhowda and Sowlutbarra.

Adjunta is a large fortified town in latitude $20^{\circ} 32' 30''$ north and longitude $75^{\circ} 48'$ east. The walls of this town have a raised banquette but no regular rampart; some of the platforms within the bastions (which are semicircular) and those over the southern and northern gateways are armed with a few small honeycombed and useless guns; about two-thirds of the area within is under cultivation; the number of inhabited houses does not exceed 250; there is a spacious and well-built octagonal serai near the northern gate, and a handsome barrahdurree on the southern face of the town; the entrance by the southern gate is over a substantial stone bridge of 10 arches built across the Wagora river, which soon after its passage through the bridge falls over a precipitous descent of about 200 feet and flows through a deep ravine past the western wall. This place was used as a dépôt for the sick and wounded immediately after the celebrated battle of Assaye, and the tombs of two or three officers who died from wounds received in that action are still to be seen outside the northern gate of the town.

Chandole, a cusba town in latitude $20^{\circ} 20' 10''$ north and longitude $76^{\circ} 45'$ east, has a weekly market and contains about 300 houses with a proportion of bazaar shops.

Burra Musla, in latitude $20^{\circ} 21' 3''$ north and longitude $76^{\circ} 2'$ east, is situated on the left bank of the Damnah river on the highroad to Booldanah; it is a large and populous village and has a market for cattle on Wednesdays.

Ghaut Shevlee, in latitude $20^{\circ} 28' 15''$ north and longitude $76^{\circ} 22' 10''$ east, is situated on a low table height ; it is a walled village of some extent, consisting of about 250 houses.

Chicklee, a cusba town, in latitude $20^{\circ} 21' 15''$ north and longitude $76^{\circ} 18'$ east, is a thriving and populous town and has a weekly market on Mondays ; this town is on the highroad from Jaulnah to Nagpoor, and is a halting stage for troops.

Oondengaon, a large walled town with a population of about 800 souls, is in latitude $20^{\circ} 27' 55''$ north and longitude $75^{\circ} 42' 55''$ east ; it has a weekly market on Saturdays ; this town is held in jaghir by Shums-ool-Oomrah, a nobleman attached to the Court at Hyderabad.

Shellode, in latitude $20^{\circ} 13' 15''$ north and longitude $75^{\circ} 48'$ east, is a walled village containing about 200 houses, and is the seat of the cutcherry of Oondengaon pergunna.

Shevance, a cusba town, in latitude $20^{\circ} 28' 55''$ north and longitude $75^{\circ} 51' 20''$ east. There is a large tank situated immediately south of the town, but it does not retain water throughout the year. Common brown sugar is manufactured here to some extent, and it has a weekly market on Sundays.

Dhar, a small town in latitude $20^{\circ} 24' 35''$ north and longitude $76^{\circ} 3' 10''$ east, situated on the left bank of a considerable mountain stream and on the highroad from Jaulna to Booldana ; it contains about 200 houses and has a weekly market on Thursdays.

Dhowda, a considerable town, and cusba of the pergunna, in latitude $20^{\circ} 30' 35''$ north and longitude $75^{\circ} 56' 30''$ east ; it has a weekly market on Thursdays.

Sowlutbarrah, in latitude $20^{\circ} 34' 15''$ north and longitude $76^{\circ} 2' 5''$ east, though a cusba town, is entirely ruined, and the cutcherry has been long since removed to Davaree.

Assaye, though a small village, deserves mention from the celebrated battle fought in its vicinity, the particulars of which are given in the following extract from Hamilton's *Gazetteer* :—"On the 23rd September 1803 a battle was fought near this place between the British army under General Wellesley, consisting of 4,500 men, 2,000 of whom were Europeans, and the combined armies of Dowlut Row Sindia and the Nagpoor Raja, amounting to 30,000. In spite of the disparity of numbers the British were completely victorious, although with severe loss in proportion to their numbers, viz. :—

" Europeans killed	198
" Natives	230
" Europeans wounded	442
" Natives	696

" Total... 1,566

"The confederates fled from the field of battle leaving about 1,200 slain, 98 pieces of cannon, 7 standards, their whole camp equipage and a large quantity of ammunition.

"This victory is the more remarkable as above 10,000 of Sindia's infantry had been disciplined and were in part officered by French and other Europeans."

The battle-field, which is a fine open plain intersected by the Kaylnah and Inah rivers, lies to the westward of Assaye, and between that village and Bokerdhun, a distance of about 9 miles, where the enemy's right rested before the commencement of the action ; nothing now remains to mark the spot where this contest took place but a low mound raised over the killed, almost obliterated by the plough, and a few scattered tombs and fragments of ordnance in the vicinity of the villages.

Population.—The population of this district consists of Mahrattas and other Hindoos of various castes and denominations, Mhangs, Dhers, Bheels, and a few Mahomedans in the larger towns. Some Mahomedan Bheels are also to be met within and about the town of Adjunta, but their conversion has produced but little change in their manners and customs, which are much the same as those of the other Bheel communities in their neighbourhood. The total amount of the population of this small district cannot much exceed 4,000 souls.

Rivers.—The principal river in this circar is the Poorna, which forms the southern boundary for a distance of 14 miles, commencing in latitude $20^{\circ} 20' 50''$ north and longitude $75^{\circ} 33' 55''$ east, and quitting the circar in latitude $20^{\circ} 14' 10''$ north and longitude $75^{\circ} 44'$ east; the bed throughout is rocky, and the banks are high and precipitous, composed for the most part of a soft loose soil. This portion of the Poorna river has already been described in detail in the memoir of the Jaulna Circar.

The Wagora river takes its rise at the foot of the Boathud hills half a mile west of the village Boathud, and continues its course easterly for several miles, passing south of Ballapoor, then winding between low ridges of hills it proceeds in a north-westerly course to the town of Adjunta, passes through a well-built bridge or causeway near the south gate, close beyond which there is a precipitous fall of about 200 feet, from thence onwards it flows through a deep ravine for about $4\frac{1}{2}$ miles in a northerly direction with a gradual descent, and issues into the plain below and to the left of the Adjunta ghaut, thence it proceeds in the same direction on to Furdapoor, $6\frac{3}{4}$ miles from the town of Adjunta, and crosses the boundary of this circar in latitude $20^{\circ} 37' 45''$ north and longitude $75^{\circ} 46' 5''$ east; a branch of this stream sweeps round the base of the hill from which the celebrated cave temples of Adjunta are excavated, and not unfrequently cuts off all approach to them during the prevalence of the monsoon; both this branch and the main stream have a deep rocky bed flowing through ravines some 500 feet below the level of the surrounding country, until they issue out on the plains below the Adjunta ghaut. The Wagora is dry or nearly so for the greater part of the year, and though at times a formidable torrent its waters soon subside and it is reduced to an insignificant stream.

The Kaylnah river enters the circar from the westward in latitude $20^{\circ} 28'$ north and $75^{\circ} 38' 30''$ east longitude, and after a short course of about 15 miles, including windings, the general direction of which is south-easterly, passes the boundary into the Jaulna Circar, in latitude $20^{\circ} 21'$ north and longitude $75^{\circ} 46' 30''$ east, near the village of Dygaon; at its entrance into the circar it is a small and insignificant stream, but gradually increases in size as it approaches the eastern boundary,—its average breadth for some six miles before it reaches that point is about one hundred yards; its bed is rocky throughout.

Besides the above there are several small streams formed by drainage from the hills and higher levels, but they are dry for the greater part of the year, and in the monsoon their waters pass rapidly off, and are absorbed in the more considerable streams described above.

Mountains and Hills.—With the exception of that portion of the Adjunta range which runs along the northern boundary of the circar there are no hills of any magnitude or importance, though the general aspect of the district is more or less hilly, numerous spurs and ramifications from the Adjunta range extending over the northern portion, while the centre and southern parts have detached hills or low table heights spread over their surface. In all these hills the ascent from the southward is generally comparatively easy and gradual, while, on the contrary, their northern faces are abrupt and precipitous; this is especially the case in the Adjunta range: the average height of the last-named hills is about 500 feet above the valley of Berar, but near Baythulwaddy they attain a much greater elevation, rising to nearly 1,000 feet above the plains of Kandeish. Basalt is the prevailing rock in these hills and throughout the circar; the surface is stony and generally covered with brushwood jungle.

Forests, Woods and Jungles.—Though the ravines amongst the hills in the Adjunta range are generally filled with thick brushwood, there is no extensive growth of wood or forest in this circar; groves of tamarind and mango trees are to be found near many of the villages, and the babool (*Acacia arabica*) is very common throughout the circar, and is much used in the construction of agricultural implements.

Cattle and Animals.—Owing to the general scarcity of water in this circar during the hot months, the domestic cattle are not numerous, and what few there

are appear weak and stunted in growth. The usual wild animals common to this part of the Deccan are to be found amongst the hills and ravines of the Adjunta range. Tigers and cheetas are numerous, and are sometimes very troublesome and destructive.

Roads and Passes.—The only roads of any importance that pass through this district are described in detail in tables Nos. 1 and 2. The pass which leads through the Adjunta hills to the valley of Berar on the road to Asseerghur, commonly known as the Adjunta pass, commences at about 2 miles north of the town of that name; entering a gateway at the crest of the ghaut, the road proceeds by a gradual descent for about $1\frac{1}{2}$ furlongs, then passes over a comparatively level but narrow platform for about 2 furlongs, when the descent again commences, and proceeds in a winding course to the bottom of the ghaut, a distance of about $2\frac{1}{2}$ furlongs, making the whole length of the ghaut 6 furlongs; the road in the latter part of the descent is very rugged and rocky, and barely practicable for guns and wheeled carriages, but might be easily improved. Three other passes to the eastward of Adjunta, known as the Bare, Tondapoor and Burs Ghaut, are mere footpaths; the latter is alone practicable to laden cattle.

Adjunta Caves.—These celebrated cave temples are situated in a wild and secluded spot about three and a half miles in a direct line west-north-west from the town of Adjunta. At the head of one of the numerous and deep ravines which penetrate from the valley of Berar into the table range of the Adjunta hills a torrent descends from a height of about 200 feet by a succession of seven falls, known as the Sathkoond, but which are only filled during the height of the rains; immediately below these falls the stream takes an abrupt turn to the northward, and then flows in a semicircular curve from west to east. In the precipitous cliff forming the outer bend of this curve, and exactly facing the falls, the caves are situated, to the number of 27 in all, exclusive of one small natural cavern. Though varying greatly in size and shape, their ornaments, emblems and divinities uniformly betoken a Buddhist origin, and several have the vaulted roof originally ribbed with timber, and the pyramidical altar surmounted by a semiglobe or the mystic umbrella, as seen in the Buddhist cave temples at Karlee, and that commonly known as the Carpenters Cave at Ellora; no trace or appearance of Brahminical symbols are to be found in any of these caves. The sculpture in many of the caves is unusually spirited and well executed, a battle of elephants and other groups and figures (in *alto relievo*) on a frieze which extends over the entrance to the fourth cave from the eastward is especially deserving of notice, but the most interesting fact as connected with these caves is the existence of fresco paintings on the walls and ceilings of some of the principal caves. In the second cave from the eastern extremity of the series, usually called the Rungmahal, these paintings have a wonderful degree of freshness considering their great antiquity, supposed to be about coeval with or a little anterior to the Christian era; the subjects, consisting of battle-pieces and processions, flowers, foliage, birds, fruits, &c., are executed with a degree of freedom and truthfulness seldom to be met with in modern specimens of native art. This cave, which is about 64 feet square, is supported on 20 pillars all highly embellished with paintings; at the further extremity, facing the entrance, are three small compartments or recesses, the walls of which are covered with painted figures of men and women of all shades of complexion, from the deep black of the Abyssinian to the fairness of the European; some of the females have also long flowing ringlets bound above the forehead with a golden band or fillet—a mode of arranging the hair unusual, if not unknown, amongst natives of the continent of India, unless it may be the Todawars of the Neilgherry hills, whose women wear their hair in long flowing ringlets but have no band or fillet. In other parts of the cave are to be seen warriors encased in complete armour, with swords and shields, both of a peculiar and unusual form. A painted figure of Buddha with his attendant disciples, of the size of life, on the wall between two of the above-mentioned recesses, is extremely well drawn, the expression of the face is strongly marked, and the shading is executed with much skill and judgment; the principal

sculptured figures in all the larger caves are images of Buddha, in a contemplative attitude, and generally of colossal proportions; most of these figures are partially clothed, but some few are not so and may possibly be of Jain origin. Several of the caves are half choked up with earth, and one considerably above the rest and most difficult of access is almost entirely filled up: whether this deposit is the accumulation of ages, or has been done designedly for the purposes of concealment, it is difficult to determine; its extending in some instances in one uniform depth to the very extremity of the caves would seem to favour the former supposition, as a screen of some few feet in thickness across the entrances would have answered the purpose of concealment equally well. But, again, some of the choked-up caves are immediately adjoining others that are entirely free from obstructions, though having nearly the same aspect, and being exposed to the same influences; these latter may have been cleared out subsequently, but no record or tradition exists of any such occurrence having ever taken place. The whole series of caves occupies an extent of about 550 or 600 yards along the face of the cliff, and are situated high above the stream—the central caves above 35 or 40 feet, while those at the western and eastern extremities have an elevation of about 80 or 100 feet. The total height of the cliff may be about 300 feet. The communication is by means of a very narrow gallery or platform excavated from the face of the cliff, but this has fallen away in some parts, rendering access to some of the caves both difficult and hazardous. These caves are not at present used as temples, and though the arrangement of some of the smaller ones denotes that they were formerly used as dwellings or dormitories for the officiating priests and other attendants, they are now quite deserted, are seldom visited by pilgrims, and do not appear to be viewed with the slightest veneration—a degree of superstitious awe mingled with feelings of curiosity being the impression they generally create in the minds of native visitors. Leyna-poor, a ruined hamlet on the crest of the ravine, nearly opposite to the eastern extremity of the caves, is assigned by tradition as the site of an ancient and mighty city, but no monuments or remains of any kind are visible to give probability to the story. An officer well qualified for the task is at present engaged, by order of the Madras Government, in making accurate and minute drawings of the sculptures and paintings, and copies of all inscriptions, in these caves.

H. MORLAND, Captain,
In charge Hyderabad Survey.

GEOGRAPHICAL, &c., MEMOIR OF THE BEDER CIRCAR.

Situation and Boundaries.—1. The Beder Circar is included betwixt the lines of north latitude $17^{\circ} 33'$ and $18^{\circ} 20'$, and those of east longitude $77^{\circ} 1' 30''$ and $77^{\circ} 55' 30''$.

2. It is bounded on the north by the Nandair and Kowlass Circars, on the south by Malkaid and Koilconda, on the east by Kowlass, and on the west by Kulliany and Koolburgah, as detailed in Paper A.

Extent and Distribution of Surface.—3. It comprises an area of 1,694 square miles, of which 26 are under tanks and wet grain, 1,097½ under dry cultivation, and 570½ are wastes, for the most part affording pasture.

Superficial Characters, Mountains, Drainage, &c.—4.* The eastern portion of the Circar, conterminous with Kowlass, shares the extensive trappean ridge whose superficial and constitutional characters have been detailed in the memoir of the latter. The crest of that vague entablature determining over granite in the Kowlass province, its base extend to the western bend of the Manjera, which courses through the valley of junction formed by the supervention of a deposit of iron clay which constitutes the south-western portion of the Beder Circar. The northern quarter of the province, as well as the broad tracts of the river valley to the east and south-east, are of plains and low ridges continued without alteration of character from the trappean region; but the aluminous mass, presenting peculiar features of configuration, requires exact notice.

The portion of the aluminous deposit included in this circar is bipartite. The eastern tablet, upon which Beder stands, is included in a loop formed by the Manjera, here defluent to the south-east, with its tributary the Narinja which pursues a parallel course in the opposite direction, while the western wing is diffusely spread within a patent angle which arises from the forking of the latter stream with the Choolky, a similar feeder which joins it near Bhalkee, and shares its debouchement into the main river.

The Beder tablet is of an irregular oblong figure 22 miles in length and 12 in extreme breadth, while its area does not exceed 190 square miles. The exterior edges form a slight elevated ridge around the disc of the plateau, whence a system of drainage, a little precipitous, tends for the most part inwards to a central longitudinal valley, and the stream accruing from the concurrent lapse of the water-courses escapes at the south-west angle of the entablature, where it adds its volume to the Narinja, which divides the whole deposit in twain. The iron surface of the plain, though little amenable to the ordinary meteoric influences, yields to the lightest current of perennial flow, and the ceaseless thread of fountains and the constant rills distilled from the rocky terrace-caves, aided by the trenchant ministry of monsoon torrents, sulcate the plain on both sides towards its central depressed axis, for the most part cleaving it to the subjacent trap; and the high and various enaunelling of the tilled fields and the generous meadows borne by the vales which are thus evaded, to the rich soils of the rock beneath contrast strikingly with the sere furrows and adust terraces of the brown vesiculated iron rock, which is on some of its slopes intolerant of vegetable life, and when not comminuted by natural agencies nor compelled to softness by human labour is for the most part waved over by the most arid gramineæ.

The outline of the table-land is so serrated by aqueous action as to resemble a jagged in wrought fringe, but contemplated at the distance of a few coss its flanks seem to run from point to point along the horizon with the sustained elevation of sheer ramparts, the façade presenting taluses of unexampled uniformity in slope and proportional altitude beneath exact mural crests,—while the facial irregularities obtrude in palpable relief, and the distinctive causes which produce these are entirely latent. This smooth semblance of unbroken continuity arises from the equal level which is characteristically maintained by the summits of the rugged spurs and dentations of the lacinated cliffs. When a brook erodes a mural valley, the superficial plane remains intact; when the abscission of some

* *File geological sketch attached to the memoir of the Kowlass Circar.*

portion of the plateau has been effected the detached monticules remain precisely coincident in level with the table-land, and stand secure from further degradation as soon as their isolation is completed. Besides the varying east and accidental deflections of the drainage, which, notwithstanding the approach to superficial concavity which has been noticed, contribute to lacinate the edge of the tablet, an eminent and distinctive source of facial demolition is to be traced to the interior hydraulics of the rocks. The aluminous mass, varying in depth from one to four or five hundred feet, rests immediately upon greenstone; and the less pervious trap opposes a flow by which the body of water filtered through the bibulous clay-bed is arrested, and forms a pregnant nursery of springs whose natural level of effluence is the line of contact of the two rocks along the base of the cliffs of the plateau, and a living spring in that propitious site quickly frets out for itself a dashing orifice, macerates and unbinds portions of its rocky tube, and upon their decadence cleaves them from its channel, till a rift like a straight inverted funnel rises above the fountain of erosion. Welling canals and rivers of water are intercepted as the chasm extends, and are appropriated by its watercourse; while feeding brooks, of importance proportioned to the breadth of inclination gained, upon either side lapse into and subsidize it.

The rift dilates to a ravine, the ravine expands to a vale, and the fountain, labouring upwards to its spring with the same genius as when it played in the foreground of the cliff, discloses behind it a valley of pregnant moulds tinged with iron loams, and irrigated by endless watercourses. At the village of Kanapoor, some miles from Beder, the font, which has unfolded valley and picturesque glen, may be seen yet receding in its ruinous path. A precipitous chasm is chiselled up to the gushing vent, and, from the angle at which the brook now flows, it promises to pierce its inexorable way for some miles further into the tablet. Near Beder, in a shadowy and many-flowered recess, a similar rivulet of full and constant volume issues from a lofty chink which marches it to an unexplored distance within the womb of the rock. This affluent fountain having attracted a decree of Aurungzebe for its tutelage, consecration and adornment, a high arch of masonry has been built to some distance within its fissure, and a channel and reservoir suited to its emergence been provided. A mosque is laved by it as it emanates, when it borne [?] to a cascade which a flight of steps accompanies to a second plane, it is thence conducted prone by the relic of a pleasure dome, and after a fresh precipitation finds its way through a rich and odorously-gardened nook to the plains below. The character imposed upon the streamlet by this elaborate guardianship is sufficiently striking when its career is compared with that assumed by the free fountain of Kanapoor. There is yet another spring which has claims to notice in this vicinity. It gushes from the base of the cliff which is domed by the sepulchres of the Bereed kings, where an umbrageous mango grove spreads under the tomb of Syed Saadut. It has long been guarded by fakirs, and resorted to by devout Moslems, and visited by curious Europeans as an unquestionable example either of a tepid spring of natural attributes or an ardent memorial of the power of the adjacent saint. It is in truth a sweet and clear fountain, admirably protected from external impressions, and indicating the exact mean temperature of the earth from which it springs. A cliff of iron clay and lithomarge rises over it for 50 feet laden with impenetrable foliage, while its chink is spanned by a small arch of stone, and the stream received by a reservoir and conveyed outwards by a tunnel something after the fashion of the more important font of the Emperor. Before sunrise on the 14th of November, when the thermometer in the air was 57, in the water within the rift it rose to 83, and neither at midday or evening was there any perceptible variation. Under the cold pulses of the sky, however, before the dawn the basin tested by the senses maintains its repute, and the heated wayfarer, who anticipates a spring of comparative coolness within the grove at noon, concedes to it his equal credence. The elevation of this tract being supposed to be more than 2,000 feet above the sea in north latitude $17^{\circ} 54' 57''$, the mean temperature due to it according to Humboldt's table is about 74° , but the indications of this font are exactly corroborated by one or two other deep-seated springs similarly defended in that line. In physiognomy and constitution the western tablet is

the counterpart of that which has been described. The surface of both plateaus present wide swathed plains, shadowed in their depressions with profound tamarind and mango groves either waved over by light dry grasses quick with deer herds, and nearly exempt from jungle, or mottled by every species of culture to which artificial irrigation is unessential. The iron clay must everywhere be pierced nearly to the subjacent trap to meet the constant springs, so that the wells in the vicinity of the edges of the tablelands are of extraordinary depth, and sugarcane and garden lands alone in favoured sites permit of their expansive draught. The stream valleys and the tracts of mixed soil around the façades bear prodigally the fruits and grains, the canes and vines, and every form of vegetable produce which belong to the climate of the Deccan.

Territorial Sub-divisions.—The circar consists of 8 pergunnas, viz. :—

Havelly	Kauramoongy	Yeekalee	Bhalkee
Chidgoopah	Nittoor	Oorad	Hussanabad.

Havelly Pergunna.—The Havelly pergunna consist of 80 principal and 5 dependent villages. Beder, the capital of the circar, stands in latitude $17^{\circ} 54' 57''$ and longitude $77^{\circ} 34' 21''$.

The Capital.—Tradition is not uniform in the measure of importance which it assigns to it as a city of the Wurungole empire previous to the Mahommedan invasion. Its later civic story is set forth in its architectural topography as by a plain legend. The name is traced by some to that of a Hindu prince; the local persuasion assigns to it an original in the Canarese word for bamboo jungle, which it is imagined once covered the surrounding tract. The story of the spot further relates that the hamlet which still clings to the ravine side within the citadel by the small tank was the first nucleus, as it is the last relic, of the ancient city. That the huts of a few cowherds there had attached to them a temple sacred to Mahadeo, whose site still appears. That the fane acquired eminent repute and was visited by the Ray of Wurungole, and thenceforward attracted a rich annual concourse of devotees. Walls rose around the village, it obtained privileges and flourished into a great city whilst the Rays of Warungole yet maintained their extended dominion. Alaf Khan, eldest son of Ghecas-ood-deen Toghluk of Delhi, besieged and took the city in the year 1322, and at that time it gave its name to a province so extensive as to have a crore of rupees assigned as the amount of its revenue by Ferishta. It thenceforward became an appanage of the Mogul empire and formed a province of the kingdom of Kulbarga.

About the year 1425 Ahmed Shah Wully Bahmuny visited Beder on his return from a campaign in Malwa. It is related that, in hunting, a fox turned upon and fought with the king's hounds, when high admiration arose of the tract which gave birth to such rare courage. It was besides beautiful, the air was of proverbial virtue, and the site of the fort was well calculated for enlargement with strength. The king built for his son a marriage palace designated the Zucht Mahal (Nos. 13, 14, 15, *vide* plan of Beder), resolved to transfer hither the seat of government, and upon its adoption gave to the new capital the prenomens of Ahmedabad. The palace, with the town and a considerable vacant space, were girt by a strong stone wall with rampart and massy towers, and surrounded upon two sides by a broad triple fosse excavated in the rock. The remaining flanks ran along a precipitous verge. To the south was the gate called the Goomaly Durwaza (No. 3), to the north-east was the Gadghi Durwaza, and there were others now obliterated. The Sultan reared, besides, the splendid mosque (9) and the elegant hummum (10) adjoining in the Lallbagh, and all was completed in the year 1432.

Allaood Deen Shah I., about the year 1445, built the palace No. 6, and included the old tank by running a wall and ditch from the Kalliany Boorj to the northern angle of the fort. Sultan Mahmood Bahmuny built the Guggun Mahal (8), and after an attempt upon his life, which he escaped by taking refuge on the terrace of the Shah Boorj (7) he built an outer wall to include two of the ditches from the corner of the Guggun Mahal to the Sherzy Durwaza (2) about the year 1490, and from this king the city received the new designation of Mahmudabad Beder.

Ali Bereed built the palace (No. 4) with its appertaining buildings, and added

the outward gate which bears his name, about the year 1573. He surrounded the pettah with its bold wall and ditch, completing a circle of fortification of about 5 miles.

Kwajee Mahmood Gawan, vizir of Mahmood Shah Bahmuny, built in the town a splendid Madrassa, of which one eminent minaret and a portion of the lustrous square alone remain. Having been used as a powder magazine after the capture of the city by Aurungzebe, lightning struck and reduced it to its present condition on Jumarat-ki-rat Rumjan A.H. 1107.

Kasim Bereed Shah II. built the city musjid soon after the death of Ali Bereed.

Upon the plain to the north-west of the city, the kings of the Bereed dynasty repose beneath many high-domed and shadowed tombs. The sepulchres of the Bahmuny monarchs are raised on the swathed plains below the tablet towards the south-east, and noble monuments in like fashion are planted frequently around; amongst others is the edifice of sepulchre of all the Abyssinians, a now ruinous quadrangle built in an unique style.

Khanapoor is placed on the Jaulnah road, 10 miles west of Beder, upon the tablet. It consists of about 1,000 houses, and a weekly market is held there. A pagoda of considerable extent and eminent sanctity, consecrated to Khundoba, is placed without the village, and during an annual feast there is here an active mart for merchandize of every description, which is exposed in a temporary bazaar. The contributions of the devotees at this festival enable the ministers of the temple to pay to Government a fixed yearly tribute of 2,000 rupees, the revenue of a small village, named Malsapoor, yielding 600 rupees, being permanently assigned for the support of the establishment.

Rajumpett is an agrarum village. The pagoda is dedicated to Maha Deo, and an annual feast takes place in it. A market is held here twice a week, one of the days being a cattle fair.

Kumtany, a favourite retreat of the Beder kings of former days, was a few years back a village of considerable consequence; but this has been extinguished by the breaking up of the bund of its tank. It is upon the Beder tablet, and is remarkable for its pipeclay pits, whose produce finds a market at Hyderabad.

Kauramoongy Pergunna.—2. Kauramoongy pergunna consists of 65 principal villages and 1 subordinate hamlet, and these in general exhibit marked symptoms of poverty and destitution. Kauramoongy, the kusbah of the pergunna, is situated on the left bank of the Manjera river, 6 furlongs south-east of a dome which furnishes a trigonometrical point. It is walled and was in ancient times a provincial town of note, but the kutcherry is now held at Jenavada, where an Amildar resides.

Chillergy is a large village standing upon the right bank of the Manjera. The boorj is stone-built and stands in the centre with a fine durgah at which a feast is annually observed. The country trade carried on here is said to be considerable. Toorhully, Vurragaon, Sundpoor, and Mooigee are respectable villages and have conspicuous gburries.

Yeckaley Pergunna.—3. Yeckaley pergunna comprises 19 principal villages. Yeckaley, the kusbah of the pergunna, lies in latitude $17^{\circ} 42'$ and longitude $77^{\circ} 38' 38''$, two miles west of the Narinja river. It is a respectable and populous town, surrounded by a wall with angular bastions, and has attached to it on the western side a small strongly-built fortalice in whose central space vines now grow, while mango groves shadow the country around. An ordinary pagoda stands on the outside of the fort, dedicated to Ranchunder, and there an annual feast is observed. The kusbah being in jaghir, the kutcherry is held at Dunnasar, and sometimes at Mogadumpully. This is the only pergunna in the circar in which from the manner of the drainage it is found profitable to cultivate rice, and the banks of the Narinja are richly lined on either side with poppy fields.

Budda Hatee, Renjoly, and Japenpully are the only other decent villages in the Yeckaley pergunna; they are remarkable for their trade and for the respectable degree of opulence of their soucars. The vine flourishes luxuriantly and orchards are frequent.

Bhalkee Pergunna.—4. Bhalkee pergunnah comprises 94 principal and 15 subordinate villages. Bhalkee, the kusbah of the pergunna, is beyond the cliffs of the table land about $2\frac{1}{2}$ miles south-west of the trigonometrical station. It is a

populous but not very extensive town of about 2,000 houses. The small fortalice attached to it is very strongly built of cut black stone with lime. A small ornamented building within is the residence of an Amildar. This pergunna with the exception of the villages of Batamra and Hoomnabad is entirely assigned in jaghir to Sumsher-ool-Oomra, a connection of the reigning family.

Batamra stands upon an eminence about $2\frac{1}{2}$ miles N. W. of Bhalkee. It was formerly an extensive place, but is at present thinly peopled. A decadent fortalice built of laterite and mounted with a few guns adjoins it to the west.

Hoomnabad, the largest village in the circar, is of a triangular form, and is situated close to the western boundary on the highroad to Poona. It is populous and has an ordinary ghurri and a mosque, the latter of which is used as a trigonometrical point. A market is held here weekly, when cumbles of very superior texture, manufactured in the town and its vicinity, are exposed for sale, sugar and sugarcandy of the best quality are prepared in the town, and from these productions its tribute to the State is principally derived.

Budda Hoolsoor is a large place situated on the western boundary of the circar near the Moogooda of the Kulliany, Beder and Nandair Circars. Its trade is considerable, and in point of manufactures it nearly equals Hoomnabad, the texture of its cloths being, however, inferior. Two days in the week are market days, and one of these is devoted to the sale of cattle. Ironstone is found and smelted in its vicinity, and agricultural implements of every description are manufactured. Keyser, Joulaga, Batsnughi, Luckengaon, Hullektraid, Korubkallagee, Chincholy and Doobulgomda are the only villages which remain of any importance in this pergunna; they are each furnished with a ghurri and consist of from 400 to 500 houses. The cultivation which prevails in the pergunna is of dry grain with plantations of sugarcane and of the betel vine. Flourishing fruit gardens are attached to almost every village.

Chidgoossah Pergunna.—5. Chidgoossah pergunna consists of 97 principal and 3 subordinate villages. Chidgoossah, the kusbah of the pergunna, is the residence of an Amildar and Deshmook. It is situated close to a stream in the midst of a rugged and undulating tract of country, and lies in latitude $17^{\circ} 42'$, longitude $77^{\circ} 15' 30''$. A small square stone ghurri stands by it on the west, and the village is remarkable for its substantial terraced houses, its numerous shops and soucars; it is well peopled, and the number of houses amount to about 2,000. The cultivation of the pergunna is chiefly of the usual varieties of dry grain, while there are considerable plantations of poppy, sugarcane and betel. The villages are extremely small, with the exception of Shiudale, Changlaie, Rinjolee and Murkoonda. These have each a few bazar shops and consist of from 400 to 700 houses. An annual festival is held at Rinjolee.

Murkoondah stands on the highroad to Poona; and Changlaie is neatly walled in and contains a ghurri in the centre built of similar materials. A market is held here weekly, and iron is smelted in great quantities.

Nittoor Pergunna.—6. Nittoor pergunna contains 48 principal and 3 subordinate villages. Nittoor, the kusbah of the pergunna, is situated on the right bank of the Munjera river in latitude $18^{\circ} 6' 15''$ and longitude $79^{\circ} 24' 30''$. It is strongly walled in and is of triangular form. The village Koosoonoor is the seat of business of the pergunna, and the place of residence of a Naib. Of the remaining villages, Hooniji, Budda Beeree, Budda, Bullaath, Ambasing, Walsung, Keroor and Dongoopra are considerable. They are surrounded with every species of dry cultivation, and supplied with water only from the several small nullas of the drainage of the country. The manufactures of cloth are inferior and unimportant. Ambasing and Dongoopra lie on the highroad to Jaulna from Hyderabad.

Vudjir, Koodly, Yedao, Bejelwaddy and Konamurpully, of this pergunna, are insulated in that of Ourad.

Ourad Pergunna.—7. Ourad pergunna includes 35 principal villages. Ourad, the kusbah and seat of the pergunna, is situated in latitude $18^{\circ} 15'$ and longitude $77^{\circ} 28'$, close on the west bank of a nulla which derives its source from the Moonganal hill. It is the residence of a Naib and has a strong little ghurri

in the centre, with a conspicuous pagoda, and it is surrounded by a wall. Of the remaining villages, Yengoondah and Sondal are alone of any consequence, and they, with the cusba, offer weekly markets, when common necessities may be procured. A small body of horse is stationed at Ourad.

Hasanabad Pergunna.—8. Hasanabad pergunna contains 100 principal villages, almost all miserable hamlets. Hasanabad, the cusba of the pergunna, lies in latitude $17^{\circ} 48' 30''$ and longitude $77^{\circ} 52' 30''$. It is in a ruinous condition and almost deserted. The most respectable of the remaining villages are Reyental, Ulgoal, Singtum, Roycoad, Kurchel and Nealakull. The four former are held in jaghir, and at Ulgoal is a pagoda dedicated to Gopalswamy, where an annual festival is held.

Kurchel is the seat of business of the pergunna, and the cutcherry is occasionally held at Nealakull.

5. *Register of Villages*.—The Register of the Villages of the circar, with relative positions and distances, is afforded by paper B.

6. *Roads*.—Of the two main lines of road towards Poona and towards Jaulna which run through the circar the latter is detailed in paper C. The former was surveyed upon a previous occasion.

7. *Minerals*.—The varieties of trap rock which appear in the circar have been minutely described in the memoir of Kowlass. The Beder plateau is constituted of clay, ironstone or laterite. The structure of the rock is vesicular, approaching to schistose upon one hand, and becoming tubular upon the other.

It consists of siliceous and aluminous combined with iron under the two conditions of a peroxide and a hydrocarbonate. The peroxide communicates to the bases a hard jaspery temper and deep red hue, while the predominance of the other form of iron is indicated by a bright yellow colour and a friable texture. Where the first prevails the structure is tubular, when the latter is comparatively abundant it is vesicular; considerable masses concentrically arranged appear without rule.

In some quarters the tubulated rock seems to be constituted of pebbly fragments either rounded or angular, and blent as if from a state of fusion unaccompanied with pressure. Each separate shred is converted, to various depths, to a fine jasper similar to that which forms the glazed linings of the tubes and vesicles, the intervening spaces being generally occupied by the ochrey clay which at times invades the circumferences of the fragments, but never itself assumes distinct contours. Fine scales of black or brown hæmatite glisten in minute cavities which occur throughout, and gild the surfaces of the pebbles when these are not closely impacted.

At several villages this rock is smelted for iron, and lithomarge under various aspects, with pipe clay, occurs in it abundantly.

8. *Rivers*.—The chief river in the circar is the Manjera. Its course is minutely serpentine, as is the manner of streams when they permeate facile valleys of erosion. Its bed is at the depth of from 20 to 40 feet below the superficial level, and the extremes of its greatest and least rapidity are marked by a bare rocky bottom with collections of boulders above 2 lbs. in weight, and a bed of coarse pebbles occasionally approaching to gravel. During the rains it is a full and torrent river, at some points half a mile in breadth and of dangerous impetuosity. The only other stream of importance in the circar is the Narinja, which divides the tablelands of Beder and Kallian. It cleaves through the laterite and runs upon a bed of greenstone like the Manjera. From the constitutional characters of the rocks which compose the country, broad alluvial straths accompany both streams.

9. *Jungles*.—The jungles are extremely light, save at the south-eastern corner of the circar below the tableland, and at a few other points. They produce no timber fitted for any other purpose than the manufacture of agricultural instruments, and afford no important supplies of wax or skins.

(Sd.) S. C. MACPHERSON, Lieut.,
In charge Hyderabad Survey.

SEUNDERABAD, 13th October 1832.

MEMOIR OF THE DOWLUTABAD CIRCAR.

Its Situation, Extent and Boundary.—The Dowlutabad Circar is an extensive district in the Aurungabad Sooba, and is situated between latitude $19^{\circ} 36'$ and $20^{\circ} 37' 15''$, and longitude $74^{\circ} 38' 42''$ and $75^{\circ} 42' 20''$. It is bounded on the north and west by Kandeish, on the east by the Bythulwaddy and Jaulna Circars, and on the south by the Pyton Circar. The windings of the Godavery mark its boundary on the S. W. and separate it from the Ahmednuggur Collectorate.

Its superficial area has been ascertained at about 2,790 British square miles, which estimating the population at 27,900, exclusive of that of the city of Aurungabad, gives 10 souls to the square mile.

The natural features of this district admit of great diversity, owing to the irregular configuration of its surface. These may be resolved into three principal divisions, *viz.*, 1st, the flat table lands crowning the summits of the various ridges which intersect the eastern face of the circar; 2nd, the valleys enclosed within these ridges; and 3rd, the undulating plain which extends west and south-west to the confines of the district. The table lands are nearly 700 feet above the plains at their highest points, and, excepting in those instances where tanks have been constructed, produce nothing beyond kurreef crops.

In the valleys are grown wheat, Indian corn, jowaree, bajree, &c. The crops here, however, are not so luxuriant as those produced on the plains. This may be attributed either to the barren nature of the soil, or the imperfect mode of cultivation.

The plains—which extend, as above stated, along the west and north-west parts of the circar—consist of a rich black loam or carbonaceous clay, passing into one of a higher and less productive nature as the hills are approached. The whole of this land is generally under cultivation, and besides the staple products of jowaree, wheat, &c., may be seen luxuriant fields of hemp, flax, cotton, peas, toor and chenna. Rice is also produced in the vicinity of large tanks during the monsoons, though not to such an extent as would constitute it a staple commodity of the district. There are, however, large plantations of sugarcane, the cultivation of which forms the principal care of the ryot in many parts of the circar.

To these products may be added turmeric of both varieties, the castor-oil plant, tobacco and a small quantity of opium.

Divisions and their Subdivisions.—The Dowlutabad Circar is subdivided into 15 pergunnas, which may be classed as follows:—

To the north, Sootoondah, Untoor and Kunnen.

To the south, Valooz and Gandapoor.

To the east, Poolmuncie, Ursool and Sattara.

To the west, Byjapoor and Kundalla.

Taklee, Deogaon, Ellora, Roza and Dowlutabad are situated in the interior.

Capitals, Kusbas, Market-places and other considerable places.—Aurungabad, the capital of the province of the same name, and residence of a Sooba, is situated in latitude $19^{\circ} 53' 59''$ north and longitude $75^{\circ} 22' 46''$ east. It was founded by the emperor Aurungzebe in the year 1650, and for a long time flourished as the capital of the Deccan; since the removal of the Government, however, to Hyderabad, it has fallen greatly into decay.

The portion of city now inhabited covers an area of almost 3 square miles, but the ruins which meet the eye on all sides plainly show that it must have once occupied a space equal to twice its present limits. Aurungabad is situated on the banks of the Gundga river, which has its source among the hills to the north of the town. It is surrounded by a plain brick wall, and well supplied with water by means of aqueducts. The streets, however, are irregular, and present no contrasts to the general rule of filth and dirt which characterizes most cities in India. There is but one square in the town. Here reside most of the Borahs or leading merchants of the place, who carry on a considerable trade with Bombay and other towns in the interior.

Aurangabad boasts of some manufactures in silk, gold lace, embroidery, gilding, &c., &c., and a demand is only wanting to draw forth the skill of its artificers. Among the objects of curiosity may be mentioned the "Beebee Mukbunah." This splendid mausoleum, situated (latitude $19^{\circ} 54' 45''$, longitude $75^{\circ} 21' 55''$) to the N. W. of the city, was erected by the emperor Aurungzebe to the memory of a favourite daughter, and is said to be a perfect representation of the "Taj Mahal" at Agra. It is built of stone covered over with a beautiful white stucco. The interior, however, is of pure white marble, as also the dome, cornices, &c., &c. The tomb of the princess, which is always covered over with tissue of gold, is an object of veneration to the residents of the town, who visit it on Fridays with offerings of flowers, sandalwood, fruit, &c., &c. A remarkable feature in the city of Aurungabad is its gardens, which produce some of the finest fruits in the Deccan. These were originally laid out in the most costly manner, but are fast falling into decay, from the inability of the present owners to support them in that style in which they were designed.

A part of the Nizam's Contingent, consisting of two regiments of infantry, one of irregular cavalry, and a company of artillery, is cantoned to the S. W. of the city. The population of Aurungabad may be estimated at 15,000.

Sootoondah, a strongly fortified hill fort in latitude $20^{\circ} 28' 56''$ N. and longitude $75^{\circ} 24' 30''$ E. It is garrisoned by a few Sebundee peons, but has no resident inhabitants of its own. The cutcherry for the transaction of business connected with the pergunna is held at Ghaut Nandoora. The fortress of Sootoondah is remarkable for a mineral spring which keeps deliciously cool throughout the year. The principal villages in the pergunna are as follows:—Ghaut Nandoora, Charnair, Paindgaon, Shaikpoor, Umtan, Baddath and Umbar. At Umtan, a tolerable-sized village, there is a party of 25 irregulars.

Untoor, a ruined and dilapidated hill fort in latitude $20^{\circ} 26' 30''$ N. and longitude $75^{\circ} 17' 11''$ E., is the nominal seat of a pergunna of the same name, the cutcherry being in reality held at Nagapoor. With the exception of a party of 50 Seebundee peons and their families Untoor has no inhabitants of its own. The only villages of importance in this pergunna are Nagapoor, Suffapoor, Palsee and Hustha. The others are merely hamlets in a state of ruin. The country around, however, which forms the valley of the Poorna, is in a high state of cultivation, and studded with mango trees. At Nagapoor there is a party of 25 sepoys.

Kunner, the seat of a pergunna of the same name, in latitude $20^{\circ} 16' 12''$ N. and longitude $75^{\circ} 11' 20''$ E., is situated on the Sivna. It is a regularly-built place for a native town and is surrounded with gardens, the fruits from which are of the finest description, and meet with a ready sale in the markets at Jaulna, Ahmednuggur, Poona, &c. The population of the town may be estimated at 1,200, most of whom are Hindoos.

The pergunna of Kunner is not of very extensive dimensions, a great portion of the neighbouring lands being isolated portions of Kandeish. Dhongaon, Dhabadee, Rail, Moondwaddec, Opalla, Amba, Gowtalla and Undanair are its principal villages, and are most of them well populated. On an average they contain from 300 to 400 houses each. The revenue of the pergunna may be estimated at Rs. 50,000 per year, a great portion of which is derived from the customs at Kunner, the town itself being advantageously situated at the junction of most of the roads leading into the province of Kandeish.

Valooz, a large village in latitude $19^{\circ} 48' 30''$ N. and longitude $75^{\circ} 16' 19''$ E., is situated on the highroad to Bombay, and has the Gunday river to the east. There is a market held here once a week, and among other commodities cattle of a good description are brought for sale from the neighbouring villages. Population 800. The villages of importance in this pergunna are Toorkalad, Digtan, Rajoora, Hummunthgaon, Dhanoora, Estawa, Ganjgaon, Wanjerwaddy, Delda and Soolagaon. These contain from 80 to 100 houses each, including 2 or 3 bazar shops.

Gandapoor, a large village and seat of a pergunna of the same name, is situated in latitude $19^{\circ} 42' 37''$ N. and longitude $75^{\circ} 3' 29''$ E. It is in a dilapidated and ruined condition, and contains 400 inhabited houses. A market is held

here every Saturday, when grain, cattle, coarse cloths, &c., &c., are brought for disposal. Within the limits of this pergunna, which embrace a wide extent of country, are situated many villages of considerable importance. Boegaon, Jamgaon, Ben Dhanoora, Manjree, Mylegaon, Lassor and Koygaon are places of tolerable size. They contain from 400 to 500 inhabitants each, who are chiefly engaged in agricultural pursuits; some, however, devote their time to the manufacture of jaggery, coarse cloths, &c., &c.

Poolmurree, a well-fortified village on the highroad to Booranpoor and Aseerghur, is situated in latitude $20^{\circ} 5' 58''$ N. and longitude $75^{\circ} 28'$ E. It is surrounded by a wall and has a strong citadel in the centre, with a few pieces of ordnance mounted on its towers. A market is held here once a week. Population 1,500. This is an extensive pergunna, and has some large and thriving villages within its boundaries. The principal are Dongergaon, Deimungaon, Chincholee, Warragaon, Patree and Boregaon. They contain from 400 to 500 inhabitants each, who are chiefly engaged in agriculture.

Hursool, a ruined and dilapidated town, is the seat of the pergunna of the same name. It is situated in latitude $19^{\circ} 55' 58''$ N. and longitude $75^{\circ} 23' 47''$ E. on the bank of the Gundary. The revenue and judicial affairs connected with the pergunna are not transacted here, as usual, the kutcherry being held at Aurungabad. The population of Hursool may be estimated at 300. Pohree, Pulsee, Warragaon, Burrood, Chickultana, Tooljapoor and Soralla are all villages of some importance in this pergunna. The others are too small to merit description. Chickultana is situated on the great post road between Calcutta and Bombay, and Barrood on the highroad from Bombay to Nagpoor.

Sattara, a considerable town situated at the base of the hills to which it gives its name, is in latitude $19^{\circ} 51' 4''$ N. and longitude $75^{\circ} 22' 11''$ E. There is a citadel in the centre of the place, but in a state of decay. A pagoda which lies to the north of the village is the scene of an annual fair, at which the usual descriptions of cattle, coarse cloths, brass utensils, &c., are disposed of. The large towns in the pergunna are Gundalee, Sondwun, Bindwun and Chincholee; coarse sugar and a superior description of jaggery are manufactured at Gundalee.

Byjapoor, a strong and well-fortified village on the Kuthkullee river, is situated in latitude $19^{\circ} 56' 41''$ N. and longitude $74^{\circ} 46' 14''$ E. It is surrounded by a stone wall with a few pieces of ordnance mounted on its towers, and garrisoned by a body of irregulars; a market is held here on Mondays, where coarse cloths, grain, vegetables, &c., are exposed for sale; population 760. Chandgaon, Rotagaon, Baggoor, Davallee and Goygaon are tolerable-sized villages in this pergunna; at Davallee, which is the seat of a talook, there is a market held once a week.

Kundalla, a small town situated at the base of a low ridge of table heights in latitude $20^{\circ} 2' 20''$ N. and longitude $74^{\circ} 50' 54''$ E. It is surrounded by a low mud wall, and is a place of no importance beyond being the seat of the pergunna; a market is held here on Thursdays; population 500. The pergunna of Kundalla is not extensive, and contains few villages of any importance,—Seanthgaon and Baboolthail are the largest. The rest are too miserable for description.

Taklee, the seat of a pergunna, is situated on the Girjah, in latitude $20^{\circ} 4' 53''$ N. and longitude $75^{\circ} 17' 15''$ E.; the number of houses in the town is 400 including two or three bazar shops. It has a weekly market on Wednesdays, at which coarse cloths, grain, and an inferior description of cattle are exposed for sale; population 600. Jerree, Boadka, Indapoor and Kunnucksur are among the most important villages in the pergunna.

Deogaon, the seat of a pergunna, is situated in latitude $20^{\circ} 2' 51''$ N. and longitude $75^{\circ} 5' 4''$ E. There are 500 houses in the town, including 6 Bunnias' shops; population 1,100. It is of late that Deogaon has assumed the position of a pergunna, the cutcherry being formerly held at Khanapoor, now ruined and desolate. The Deogaon pergunna is not extensive, and contains few places of any note. Peplegaon, Donwadda and Laknee may be mentioned as containing from 300 to 400 inhabitants each.

Ellora, a celebrated town on the highroad to Dhoolia, is situated in latitude $20^{\circ} 2' 22''$ N. and longitude $75^{\circ} 12' 55''$ E. It is surrounded by a stone wall and is tolerably well built and regular, the streets running at right angles to each other. There is a reservoir for water in the centre of the village, to which the Brahmins generally resort during the mornings to perform their ablutions. The far-famed cave temples of Ellora are in the immediate neighbourhood of this place, a description of which would be altogether superfluous, so many being already on record. Population 800, of whom the greater number are Brahmins connected with these temples. The Girjah, a tributary of the Poorna, takes its rise three miles to the N. E. of this town. Kussapkhaida, Deopodee, Palluswaddy and Boregaon are the only villages of importance in this pergunna. They contain from 200 to 300 inhabitants each, most of whom are Hindoos.

Rozah, a beautifully situated town in latitude $20^{\circ} 0' 58''$ N. and longitude $75^{\circ} 14' 32''$ E., is the seat of the pergunna of the same name. It is now a heap of ruins, but bears evident traces of once having been a place of considerable importance. This town is remarkable as being the burial-place of many of the princes of India. A small and mean-looking mausoleum here marks the last resting-place of the emperor Aurungzebe, and is quite in accordance with his character. It was built under his own directions, and after his death (which occurred in Western India) his remains were removed here by his friends. Among others may be mentioned the tombs of Nabab Asseljah of Hyderabad, Jurgerree Buksh, Nizam Shah, Nabab of Bhyree, and Tancee Shah, Nabab of Hyderabad. There are besides these 1,400 tombs of lesser size. The population of Rozah may be estimated at about 2,000 or 3,000. At an annual fair held here to commemorate the death of Jurgerree Buksh are exposed for sale cattle of an inferior description, piece-goods, brass utensils, &c. This town is 500 feet above the level of the plains, and is situated on the highroad between Dhoolia and Bombay.

A great number of villages in this pergunna are jaghirs held by Peerzadas. Among the most important of the khalsa villages are Khanapoor, Gadanaah, Pundurpoor and Golagaon. These contain from 200 to 300 houses each, and are in general well populated. The inhabitants are chiefly engaged in agriculture, but a few confine themselves to the manufacture of a species of coarse cloth. The revenue of the whole pergunna, exclusive of the jaghirs, may be estimated at Rs. 30,000.

Dowlutabad, the capital of a circar and seat of a pergunna, is situated in latitude $19^{\circ} 57' 17''$ N. and longitude $75^{\circ} 15' 43''$ E. It is a well-fortified place and strengthened in the native style, yet when properly garrisoned capable of making considerable resistance. The greater portion of the town, however, is now in ruins, so much so that the path of the passenger is obstructed in many places by the crumbling remains of falling houses. There are no buildings of importance in the town if we except the "Chand Minar," a column of unusual height. This is supposed to have been erected for an observatory. Dowlutabad has but few inhabitants. These are engaged in the cultivation of the vine and other fruit trees. The grapes produced here are much esteemed, and great quantities are sent as presents to the Nizam at Hyderabad. At the north end of the town, crowning the summit of an isolated hill, is situated the far-famed fortress of Dowlutabad. It is a place of considerable strength, and evidently the work of those who were not altogether ignorant of the art of fortification. A moat always supplied with water and upwards of a hundred feet in depth surrounds the fort, which is entered by a narrow and dark passage hewn from the living rock. The guns mounted on the various batteries in the interior are of too heavy a calibre to be used with readiness and precision. There are others, however, of French cast in a state of perfect preservation. Dowlutabad, which is now used as a state prison, is garrisoned by a killadar's party, who are as remarkable for their extreme poverty as their insolence. Kayaswaddy, Russoolpoor, Mursalla and Meet Meeta are the only villages of any importance in this pergunna. The first, which is situated on the table land 4 miles N. of Dowlutabad, has a considerable trade in paper, which is manufactured here and highly prized throughout the Deccan. At Meet Meeta there is a distillery for a superior description of arrack.

4. *Rivers*.—The principal rivers in the Dowlutabad Circar are as follows :—Poorna, Ajnah, Shivna, Kailna, Girja and Gunday. Besides these there are other streams, but not of sufficient magnitude to merit description.

Poorna.—This river takes its rise $1\frac{1}{2}$ miles N. W. of the village Muhone, and running in an easterly direction enters a slip of land flanked by low table heights. Thence it continues its course for $12\frac{1}{2}$ miles along the valley to which it gives its name, receiving on its way the tributary waters of numerous streams, and leaving the villages of Sowergaon, Nimborah, Kutruskhaid, Ravulgaon and Nagapoor severally on its eastern and western banks. At Nagapoor the bed of the Poorna begins to enlarge, and during the monsoons is not fordable except by the rude craft commonly used by natives. After quitting the valley the river pursues its course in a south-easterly direction for 14 miles, and finally divides the Dowlutabad from the Bythulwaddy Circar. It is joined by the Ajnah river at Sissarkaida, and quits the circar in latitude $20^{\circ} 14' 22''$ N. and longitude $75^{\circ} 43' 15''$ east. The course of this river through the Dowlutabad Circar, including its windings, may be estimated at 45 miles in length. Its banks are from 20 to 30 feet high, and its average breadth from 90 to 100 yards. The bed of this river is for the most part stony and retains water throughout the year.

Ajnah, a tributary of the Poorna, has its rise near Taphore, a small village 11 miles N. E. of Kunner. This stream after gliding through various rugged declivities seeks the plains about 2 miles from its source and pursues a winding course through the valley which bears its name. Here it is joined by numerous streams from the neighbouring hills. It then flows in an easterly direction for 15 miles, when it empties itself in the Poorna one mile S. E. of Sissarkhaid. The principal towns and villages on its bank are B. Pulsee, Pusoor, Jowkhaid, Buddah Muslah and Uppley. The average length of the Ajnah may be estimated at 25 miles. The valley is very fertile and well studded with mango trees.

Shivna, the largest of the rivers which traverse the Dowlutabad Circar, has its source at Paidka, a ruined hill fort situated in latitude $20^{\circ} 15' 31''$ N. and longitude $74^{\circ} 54' 40''$ east. It proceeds eastward for 12 miles through a hilly district, and swollen with the tribute of numerous mountain torrents descends south-easterly, having on its banks the towns of Kunner and Dhabady. Here it assumes a contrary direction, and flowing S. W. gains the plains by a tortuous course. It next glides through an open country to Boygaon and Deolee, where it forms the great receptacle for the many streams which wash the plains below the ghauts. The river then proceeds south for 14 miles, and receiving the waters of the Daikoo and other streams of considerable magnitude pursues an uninterrupted course of 35 miles S. E. to Sowkhaid, when it empties itself into the Godavery. The length of the Shivna from its source to its junction with the Godavery may be estimated at 90 miles. Its banks are low and bed sandy. It retains water, however, throughout the year, though the quantity during the hot months is scanty.

Kailna.—This river, only a small portion of which traverses the Dowlutabad Circar, takes its rise among the hills in the vicinity of Kailwan. Its course throughout the district is south-easterly, and measures 12 miles. The banks of this stream are steep and woody, and retain water throughout the year.

Girja, a considerable stream and tributary of the Poorna, has its source 3 miles N. E. of the town of Ellora, among the hills so celebrated for their cave temples. After a southerly course of a few miles it takes a north-easterly direction, flowing between a low ridge of hills for 11 miles. It then glides along the extremities of several clusters of low table heights, and fed by numerous mountain torrents bursts on the plains (near Poolmurree) a broad and rapid stream. The course of the Girja is generally regular, the river flowing nearly due east. It is indebted to the ranges of hills which border its course for the numerous tributary streams which swell its waters during the monsoon, and contribute much to its not being altogether dry during the hot months. The banks of the Girja are low, its bed sandy, and its width at the broadest parts from 100 to 150 yards. It quits the circar after a course of 40 miles.

Gunday.—This river has its source by Russoolpur and Mowsalla. It takes

an easterly course for 8 miles, when it is joined by a considerable stream from the north, the junction of which with the Gunday river swells it to a great extent. The river then takes a south-westerly direction, passing close by the western wall of the city, and east of the cantonment of Aurungabad. At Valooz, a cusba town, it runs due south, receiving numerous tributaries from the Sattara hills and those to the north of Aurungabad. It quits the circar in latitude $19^{\circ} 42' 47''$ N. and longitude $75^{\circ} 15' 24''$ E. The banks of the Gunday are very low, and its bed for the most part stony. It retains water throughout the year, but the quantity during the hot months is very scanty.

5. *Mountains and Hills*.—There are no mountains in this district properly so called if we except the high range of hills which skirt the northern boundary of the circar, and is commonly known as the “Ballaghaut” or upper ghaut of the valley of Berar. Towards their western extremity these hills are termed Santh Mhal, and as you advance eastward respectively Gowthalla Ghaut, Nandoor Ghaut, Davul Ghaut, Lakunwaddy Ghaut, &c., &c. The general direction of the higher ranges is nearly from west to east, while that of the lower is from north to south. Smaller branches, however, run off from these in various directions, and form the different clusters which are interspersed about the eastern face of the circar. Between Untoor and Kulsagherry the Ballaghaut attains its greatest elevation, which in some places is 2,000 feet above the level of the sea.

6. *Forests, Woods and Jungle*.—The hills are covered with a dense jungle and produce valuable species of timber. The bastard teak, bamboo and a superior description of blackwood abound. Sandalwood is also produced in large quantities. This tree, which grows wild among the mountain ridges of the district, seldom comes to perfection when transplanted and carefully irrigated. The proportion the hilly bears to the plain country in the Dowlutabad Circar is one-quarter.

7. *Roads and Passes*.—*Vide* Table of Roads.

There are four passes through the Ballaghaut mountains into Kandeish. These are Gowthalla, Joonona, Chandra and Wakokee. With the exception of the first not one of these is passable by wheel carriages. Laden bullocks sometimes venture through the other three, but with great risk.

8. *Cattle and Animals*.—The circar is well stocked with cattle of all kinds. The bullocks, cows, buffaloes, sheep and goats are generally of a good description, though small. Among the wild animals may be enumerated the tiger, panther, cheetah, bear, hyæna, wolf and wild hog; neilgæe, spotted deer and the common and goat antelope are also to be found in the jungly and hilly tracts.

Aquatic game is scarce, and only to be found in the beds of large rivers.

MEMOIR OF THE JAULNA CIRCAR.

Situation, Extent and Figure.—The Jaulna Circar is bounded on the north by Maiker, on the east by Bassim, south by Patree, and on the west by the Dowlatabad Circars; the figure is of a triangular form and comprises an area of 2,457 square miles, $36\frac{1}{2}$ of which belongs to Scindia and Holkar. *Vide Table.*

Divisions and Subdivisions.—It is comprised of ten pergunnas, viz.: 1st, Havalee or Jaulna; 2nd, Roshengaon; 3rd, Purtoor; 4th, Runjane; 5th, Umbud; 6th, Bokerdhan; 7th, Dhabaddy; 8th, Land-Sangvi; 9th, Yekthoon; and 10th, Peepree.

Capitals, Cusbus, Droogs, Ports, Market and other considerable places.—Jaulna or Havalee, the cusba, comprising 74 principal villages, 10 of which are in ruins, is situated in latitude $19^{\circ} 50' 42''$ N. and longitude $75^{\circ} 56' 15''$ E., on the right bank of the Koondalka river, and was formerly a large and well-populated town containing about 800 houses, two-thirds of which are now a mass of ruins; the remaining few, of strong masonry, are also fast decaying. On the left bank of the Koondalka is situated the large petta Khaderabad, surrounded by a stone wall with four arched gateways, and is the residence of opulent native bankers, and of several Parsee merchants who supply the forces with English commodities. A grand weekly fair, in which provisions and numerous head of cattle are exposed for sale, is held here on Tuesdays.

Half a mile north of the petta is the British cantonment, garrisoned by a troop of horse artillery, a regiment of native cavalry and one of infantry. Another fair is held on Saturdays in the cantonment bazar, where only provisions are sold.

2. Roshengaon, a small kusba, comprising 33 principal villages, situated in latitude $19^{\circ} 48' 47''$ N. and longitude $75^{\circ} 46'$ E., and on the right bank of the Sookna river, is surrounded by a high mud wall and contains about 200 houses. The only market town in this pergunna is Budnapoor, situated on the right bank of the Doodna river, in which a tolerable fair is held on Fridays. A little N. E. of the town in a grove of trees stands a durga dedicated to Meer Goomshaw.

3. Purtoor, a large town but now in a dilapidated state, and seat of the pergunna, comprising 109 principal villages, 14 of which are in jaghir, is situated on the high military road from Jaulna to Hyderabad in latitude $19^{\circ} 36'$ N. and longitude $76^{\circ} 15' 29''$ E.; it is enclosed by a high stone wall and has but little to recommend it; in its vicinity are several ruined mosques and temples with an extensive encamping ground, a fine tank and reservoir; there are several good bazar shops in the place, and a market is held on Thursdays. The villages of any note in the pergunna are Sailoo, Sathona and Wurpull, which are well populated; they are immediately on the highroad from Jaulna to Hyderabad, and afford travellers every convenience.

Munta, situated in latitude $19^{\circ} 39' 13''$ N. and longitude $76^{\circ} 25' 36''$ E., is a large market town and the residence of several opulent Bunnias who trade chiefly in grain, cotton, coarse cloth, blankets or kumbles, and brass and copper utensils. The rest of the villages in this pergunna are small and thinly populated, having about 20 or 30 houses in each.

4. Runjane, comprising 27 principal villages, and situated on the highroad from Jaulna to Hyderabad, in latitude $19^{\circ} 39' 29''$ N. and longitude $76^{\circ} 10' 3''$ E., is a large market town, and the seat of the pergunna, enclosed by a mud wall. It is remarkable for a neat pagoda situated S. W. of the town. A weekly market is held on Fridays.

Karta, situated in latitude $19^{\circ} 41' 53''$ N. and longitude $76^{\circ} 4' 53''$ east, on the highroad from Jaulna to Hyderabad, and on the right bank of the Koondalka river, is enclosed by a mud wall, has several bazar shops and a good encamping ground.

Navah, a large village situated on the tappal road from Jaulna to Nagpoor, is well populated and is a stage for troops.

5. Umbad, situated between a ridge of hills in latitude $19^{\circ} 37' 15''$ N. and longitude $75^{\circ} 50' 7''$ east, is a large pergunna; it has 217 principal and one subordinate

village subject to it ; 14 of these are ruined and 5 in jaghir to Scindia and Holkar, viz., Gansangavy, Pepulgaon, Raneeoohagaon, Patrawalla and Bamdalla. The population of this place amounts to about 1,600 souls. There are several braziers', butchers', arrack and few bazar shops in this town. A weekly market is held on Thursdays.

6. Bokerdhun, cusba of the pergunna, comprising 39 principal and 8 subordinate villages, 4 of which are ruined, is situated on the right bank of the Kaylna river in latitude $20^{\circ} 16' N.$ and longitude $75^{\circ} 46' 56'' E.$, it has a strong citadel, near which was fought the battle of Assaye by the Duke of Wellington, and is surrounded by a mud wall; the population amounts to about 800 souls; a weekly market is held here on Saturdays, when all kinds of grain, coarse cloths and blankets are exposed for sale, and is well attended by the inhabitants of the surrounding villages. The produce of several sugarcane fields yields a good revenue to Government.

7. Dhabaddy, a small pergunna and market town situated on the highroad from Aurungabad to Ellichpoor, and immediately below the base of table hills, in latitude $20^{\circ} 2' 4'' N.$ and longitude $75^{\circ} 46' 33'' E.$, contains about 400 houses; it has 38 principal and 5 subordinate villages under it, 2 of which are ruined. It is surrounded by a high mud wall with a citadel, and has several bazar shops.

Serusgaon, a small town situated at the base of table hills, and on the highroad from Aurungabad to Ellichpoor, is remarkable for its fruit gardens.

Mahdeo Chundhoy is a neat-built village situated on the highroad from Aurungabad to Ellichpoor.

The remaining villages of this pergunna are small, containing from 20 to 30 houses each, and are of no particular note.

8. Land Sangvi is a small pergunna comprising 4 principal and 1 subordinate village, situated on the highroad from Aurungabad to Ellichpoor on the right bank of the Doodna river, in latitude $19^{\circ} 58' 48'' N.$ and longitude $75^{\circ} 39' 54'' E.$; it is surrounded by a wall, and contains about 600 houses with two or more bazar shops, and is a stage for troops; north of the town are two edifices dedicated to Mahdeo, but are now in a ruined state.

9. Yekthoon, a large village and pergunna of $3\frac{1}{2}$ principal villages, situated on the bank of a stream, in latitude $19^{\circ} 44' 55'' N.$ and longitude $75^{\circ} 38' 57'' E.$, is surrounded by a wall, and of no note excepting that a weekly market is held on Mondays.

10. Peepree, the seat of the pergunna, situated in latitude $19^{\circ} 48' 10'' N.$, and longitude $75^{\circ} 34' 42'' E.$, on the right bank of the Sookna river, comprises $71\frac{1}{2}$ principal villages, of which 22 are in jaghir. It has a population of about 1,500 souls. A weekly market is held on Sundays, and it is the residence of a few opulent merchants who trade in cotton to some extent with the surrounding villages.

Budda Jelgaon, situated on the highroad from Jaulna to Aurungabad and on the left bank of the Sowkee stream, is a large walled town with bazar shops, and a weekly market is held on Saturdays.

Jom, Lembolee, Surrupgoan and Parudgaon, of the Umbad pergunna, are large market towns containing from 200 to 300 houses each.

Villages of Scindia and Holkar in the Jaulna Circar :—

Bamdalla and Pippulgaon occupy an area of 7 square miles, the former is a small straggling village of about 60 huts, and the latter is a walled town well inhabited and with several bazar shops. A weekly market is held here.

Gunsangery is a large market town occupying an area of $10\frac{1}{4}$ square miles, surrounded by strong mud walls with a population of about 400 souls; it has several good bazar shops, and a weekly market is held on Wednesdays.

Ochagaon is a tolerable-sized village occupying an area of $7\frac{1}{2}$ square miles. A weekly fair is held on Sundays.

Patrawalla, situated on the right bank of the Godavery river, is a middle-sized village occupying an area of $5\frac{3}{4}$ square miles.

Rivers.—The principal rivers passing through this Circar are the Koondalka, Kallianey, Doodna, Poorna, Girja, Sookna, Kaylna, and a portion of the Godavery.

The Koondalka takes its rise north-west of Jaulna at the village Rajoora ; winding over an open and fertile country it passes along the village Tapoun, breaks through the large tank half a mile north of Matrywaddy, descends in a southerly course by the villages Mang, Devulgaon, Wakwaddy, Gunnawaddy and Nethand for $12\frac{1}{2}$ miles, thence taking a south-easterly course passes between the city and petta of Jaulna, it then forms an island and proceeds by Koomraddy, Saveraddy and Burgaon, forming another island. It passes by Kumpoori, Butt-poori and Bapkul, where it is met by a large stream, then descending in a southerly course runs by Huthwan and Karla, and unites with the Doodna river close north of the village Kurrudgaon, after a course of about 57 miles.

The next in magnitude is the Kulleaney river, which takes its rise at the Wagrool hills ; meeting several mountain streams at the village Kulleaney, whence it derives its name, it proceeds in a south-easterly course, winding along the villages Soamnath, Julgaon, Bomunkhaid, Belpoor, Moospody, Dunragaon, Korpody, Nussudgaon, Yenoora and Dunnoord, and receiving the waters of the Girza hill stream it then descends south by the village Hiragaon and falls into the Doodna, half a mile north of the village Babby, after having traversed a distance of 26 miles.

The Doodna river takes its rise from the Kinkoora mountains and enters the circar 6 furlongs S. E. of the village Doankarda, thence pursuing an easterly course it winds along the base of table hills, keeping the villages Borewaddy, Unjendo, Nargovan and Sailooth on its right and Chata on its left bank, for a space of 11 miles ; taking a south-easterly course it meets a large stream, and proceeds to Land Sangvi, winding north of which and taking a south-easterly course it passes by Syedpoor, Aurungapoor, Kasnapoor, and receives a large stream ; taking a more southerly course it passes between the villages Doola, Doolapoor, Mallawaddy and Waddy, meets another large stream, proceeds to the south of Soamtanah in a south-easterly course to Nikulne, and receives another large mountain stream $12\frac{1}{2}$ miles distant, turns southerly, forming several serpentine bends in its course, for $3\frac{1}{2}$ miles, and passes by the villages Ukkoola and Kaida to Budnapoor ; proceeding in a southerly direction to Padolee and Dopteishwar meets a large stream and passes by Umbudgaon and Doksul to Koombaree, a mile south of which it forms a bend and receives the waters of the Lankee river, it then passes between Dongergaon and Soygaon, forms another serpentine bend, and receives a large nullah close north of Sangvi, 15 miles distant. Leaving Sangvi it winds between the villages Allungaon, Ranjengaon, and Chumbarwaddy, proceeds almost in an easterly direction to Nagjerry and Gotun, meets the Karinja stream and winds at the foot of a detached hill for a mile, then pursuing a north and easterly direction for a short way passes between the villages Gola and Pangri, forms another bend and receives a large mountain stream. Taking an easterly course it passes between Budda and Chota Buttan, forms a large bend to the south and receives a large nullah, winding between the villages Katkarda, Kallagaon, and the ruined villages Moodagaon and Tandulwaddy to Saveragaon, where it receives the waters of the Chuckernuddee at a mile east, then descending south-easterly for a mile and a quarter receives another large stream, proceeds easterly to Boothagaon, and in its course to Kurrudgaon receives the Koondalka river ; proceeding in a north-easterly direction along the villages Chettuda, Wujjir and Kowtah it receives the Kulleaney river half a mile north of the village Babby, and descends south-easterly receiving numerous mountain streams, forms several bends in its progress along the villages Geloby, Dolarah, Noudra, Yekrooka and Budda Roennah, where it is crossed by the high trading road to Oomrawutty ; continuing in the same course along the villages Nagpoor, Koragaon and Bejoda, it meets a large mountain stream two furlongs south of Hutwun, then taking a southerly course receives several small nullas, passes along the villages Podlee, Naney, Budda and Chota Mapagaon, Nanjola and Chundasur, 2 furlongs south of which it meets a large stream, and assumes a south-easterly course over a plain and fertile country, passing along the villages Devalla, Kedar, Wakuddy Kurnskhaid, Wakuddy Seralla, Peepree, Kudgaon and Moregaon, and meets another large stream ; containing in the same course along the villages

Koopsa, Digress, Ruinnah, Rajah, Rajeraddy and Kowadthan to a mile south, it quits the Circar in latitude $19^{\circ} 27' 10''$ north and longitude $76^{\circ} 33' 46''$ east, after a course of 112 miles.

The Poorna river enters the circar in latitude $20^{\circ} 14' 4''$ and longitude $75^{\circ} 43' 46''$ E., north of the village Thanda ; proceeding easterly for a mile and southerly for three-quarters of a mile, it assumes a south-easterly course, forms several bends, receiving many nullas near the villages Tandalwaddy, Kotey, Jynepoor, Kotarvah and Nanja, then descending southerly to the village Landgaon receives a large stream, assumes a south-easterly course and winds along the villages Kopulda, Baloor, Budda and Chota Walsa, where it receives the Girja stream at a mile south-east ; pursuing an easterly course and passing along the villages Soola, Mailkhaida and Kayderkhaida to the Moogooda (No. 3) it quits the circar in latitude $20^{\circ} 10' 2''$ north and longitude $75^{\circ} 53' 14''$ east, after a course of $13\frac{1}{4}$ miles.

The Girja river enters the circar in latitude $28^{\circ} 8' 57''$ north and longitude $75^{\circ} 42' 19''$ east, close to its junction with the large stream near Devulgaon, whence it pursues a south-easterly course, with steep and rugged banks, and after receiving several mountain streams in its progress through the villages Esta, Hassanabad, Luttapoor, Baregaon, Kudki and Seerusgaon to its junction with the Dhabaddy stream assumes a north-easterly course, passes along the villages Budda and Chota Taklee and Boregaon, and falls into the Poorna river after a course of $13\frac{1}{4}$ miles.

The Sookna river enters the circar in latitude $19^{\circ} 51' 50''$ north and longitude $75^{\circ} 27' 48''$ east, and forms a portion of the boundary for $2\frac{1}{4}$ miles ; assuming a south-easterly course, it receives numerous mountain streams in its progress to the villages Jalta, Budda and Chota Taklee, Neepanee and Bolgaon ; meeting two large streams it passes Uppudgaon, Ittulpoor, Garkhaid and the cusba of Peepree, and descends south and south-easterly over a plain country receiving numerous mountain streams in its progress, to the villages Taklee, Dygovan and Garagaon, passing which and meeting another large mountain stream it takes a north-easterly course, receives the waters of the Yokthoon stream close to the village Kolegur, and pursues an easterly course passing along the villages Boygaon, Vankaloor, Dygovan, Voygaon, Chikengaon and Nanapoor, then descending south and south-easterly, and passing the villages Buddapoor, Untervully, Anva and Sangvi, it falls into the Doodna after a course of 30 miles.

The Kaylna river enters the circar in latitude $20^{\circ} 20' 4''$ north and longitude $75^{\circ} 46' 30''$ about three-quarters of a mile north of the village Hownah, where it forms a serpentine bend, and meets a large mountain stream and proceeds easterly. It receives the waters of two other streams, descends south-easterly and passes through the insulated portion of Gokool, leaving the village on its left bank, and keeping on the same course passes the villages Purludpoor, Parpapoer and the cusba of Bokerdhun, and receives a large mountain stream ; winding easterly and southerly it washes the wall of the town, takes a south-easterly course, and after receiving the waters of several small nullas it passes by the villages Masunpoor, Lingwaddy, Kodelly, and Taklee, and quits the circar in latitude $20^{\circ} 14' 4''$ north and longitude $75^{\circ} 55' 41''$ east.

Girza, a mountain stream, derives its source from the table hills of Mehal Sovergaon, where a neat temple is dedicated to the deity Girzabai, descends south-easterly at the base of the Shivaney range of hills, keeping along the villages Anchee, Damergaon, Paragaon, Jytapoor and Untervully for $8\frac{1}{2}$ miles, descending in a southerly direction it keeps along the villages Songavce, Dypul, Sallagaon, Tukurna and Yevuldy, when it falls into the Doodna river close east of Yenvora, a distance of 17 miles from its source.

The Lawkee river takes its rise from the Maholee mountains, enters the circar half a mile east of the village Wudker in latitude $19^{\circ} 56' 19''$ N. and longitude $75^{\circ} 32' 12''$ E. ; proceeding in an easterly direction for $2\frac{1}{2}$ miles, and passing by the village Wadthodee it crosses the highroad from Aurungabad to Ellichpoor ; taking a south-easterly direction, and passing along the villages Bomulda, Doodood to Budda and Chota Jelgaon it crosses the highroad from Aurungabad to Jaulna ;

keeping along the same course it receives the waters of the Shaikta nulla at the villages Dammee and Vaygaon, then winding along and meeting several small nullas it passes the village Warrodee, Kuddagaon to Roshengaon, the capital, quitting which it winds along in a south-easterly course and falls into the Doodna river a mile south of Koombaree, after having traversed a distance of 22 miles.

Roads.—The principal roads passing through this circar are as follows :—

The military road from Secunderabad to Jaulna enters the circar in latitude $19^{\circ} 25' 51''$ N. and longitude $76^{\circ} 36' 15''$ E., two miles S. E. of Sailoo, leaving which it proceeds north-westerly over high ground by the villages Ravulgaon, Budda and Chota Sathona, Roemah and Wurpall, a mile south of which it crosses a large stream and proceeds close by the fort wall of Purtoor, a large market town and stage for troops, then taking a north-westerly direction and keeping over undulating slopes, proceeds to the village Muslah, and gains the rugged, deep and swampy stream at Jowlah, where it becomes impracticable for the passage of wheel carriages, then gaining an open and fertile country crosses a large mountain stream a quarter of a mile east of Runjanee, and proceeds over an open and fertile country till it crosses the Doodna river near the village Chittuda, where it becomes rocky, then keeping over high ground gains the village Pepulgaon, crosses the Koondulka and proceeds to Karla, a stage for troops, then keeping over undulating slopes through an open and fertile country, passes the villages Wodee and Thangaon, crosses several small nullas and gains the village Burgaon, close on the right bank of the Koondulka, then crossing several other small nullas it gains the cantonment of Jaulna, a distance of 40 miles.

The road from Jaulna to Aurungabad proceeds north-westerly through the general bazars, then descends south-westerly and crosses a large wet stream near its junction with the Koondulka, taking a westerly course crosses several ravines, and keeping over undulating slopes gains the village Nagawaddy ; here it becomes indifferent and rocky for about a mile ; keeping the same course over undulating heights it gains the village Shailugaon, where it becomes swampy, then crossing a large mountain stream a quarter of a mile N. of Mathrywaddy proceeds westerly and crosses the Doodna river ; passing along the fort wall of Budnapoor to about 6 furlongs it crosses a bridge and nulla ; keeping the village Shaikta close on its left gains the village Budda Jelgaon, a stage for troops ; crossing the Lawkee stream it proceeds in a south-westerly direction to Suttona, where it becomes indifferent ; then gaining a gentle ridge of table heights and keeping along the village Kurmand passes over high swells to a bridge, nulla and a remarkable grove of trees ; then proceeding over undulating swells it crosses several small streams and gains a bridge and nulla where it quits the circar in latitude $19^{\circ} 22' 54''$ N., longitude $75^{\circ} 30' 15''$ E., distance 31 miles.

The road from Jaulna to Nagpoor quits the cantonment and crosses a large stream, then takes a north-westerly course over undulating slopes across several ravines to the base of a table hill, gaining which it crosses a large stream where, keeping the Koondulka on the right and Bavany Peppelgaon on its left, it proceeds northerly to the base of another table hill and across a nulla to the village Bavany Pangry, a stage for troops ; leaving the village it proceeds northerly, and quits the circar in latitude $20^{\circ} 2' 5''$ N. and longitude $75^{\circ} 56' 40''$ E., distance 14 miles.

The high road from Jaulna to Hingolee proceeds north-easterly from the cantonment, crossing a bridge and nulla half a mile distant, leaving Deomoosthy on its right ; it gains the base of a table hill ; after ascending and keeping on its summit for 2 miles descends and gains the ruined village Boarkhaida, then passes over undulating slopes across two mountain streams, and ascends the Mhal-swamy Ghaut, where it quits the circar, latitude $19^{\circ} 56' 34''$ N. and longitude $76^{\circ} 6' 6''$ E., distance 31 miles.

The road from Jaulna to Sholapoor quits the town of Khaderabad across the Koondulka stream, and keeps in a south-westerly direction, passing through Old Jaulna, over undulating slopes, meets the Ahmednuggur road at a distance of 2 miles, then descending to the village Indwaddy and keeping in a south-westerly

course over undulating slopes crosses several streams and meets the Doodna river a quarter of a mile north of the village Pipulgaon, a stage for troops, leaving which and proceeding over high swells across a large mountain stream N. of Piperi it gains the village Parnair, where the road divides ; then keeping southerly over high ground gains the cusba Umbud, another stage for troops ; proceeding south-easterly for a mile over rugged slopes, and south-westerly over plain undulating slopes, gains the village Jerpy ; it then crosses a mountain stream, passes over high ground and meets the Gullanta stream between the villages Dadagaon and Shawpoor, distant $8\frac{1}{2}$ miles ; then passing over slopes to the village Dakulgaon it once more meets the road from Parnair ; then proceeding over high ground in a southerly direction and crossing two streams in its course meets the highroad from Aurungabad half a mile north of Mankulla, a mile and a quarter south of which it quits the circar, in latitude $19^{\circ} 23' 40''$ N. and longitude $75^{\circ} 45'$ east, after traversing a distance of 29 miles.

The road from Jaulna to Ahmednuggur quits Khaderabad, and proceeds south-west for 2 miles (leaving the Sholapoor road on its left) over high ground to the village Koompul, where it crosses two streams, keeps along the base of hills and gains the village Kajalla, a stage for troops ; keeping in the same direction over high ground it gains and crosses the Doodna river between the villages Runjengaon and Allungaon, and winds along crossing a mountain stream at the village Kurjut, a stage for troops ; keeping over high ground and passing the villages Peepulgaon, Kingaon and Jamkhaid across several streams it takes a south-westerly course over high swells, crosses three rapid streams and meets the highroad from Aurungabad to Mominabad, then proceeding over high swells to the village Nimbgaon crosses a stream and enters the Pyton Circar in latitude $19^{\circ} 35' N.$, longitude $75^{\circ} 36' 19'' E.$, distance 30 miles.

The road from Aurungabad to Mominabad enters the circar in latitude $19^{\circ} 50' 8'' N.$, longitude $75^{\circ} 27' 20'' E.$, passes over undulating slopes at the base of table hills of Chincholee, a stage for troops, and crosses several nullas in its progress to the village Teethee ; leaving it on its left, keeps over high ground, crossing a stream between the villages Peepulgaon and Pandree, and enters the Pyton Circar ; keeping on the same course and passing between the villages Budda and Chota Huddool, which latter is a stage for troops, it quits the Pyton Circar a mile S. E. of Huddool ; it then keeps along the base of hills, crosses a mountain stream and gains the village Untervully, and in its progress meets the highroad from Jaulna to Ahmednuggur ; crossing a mountain stream and passing by the village Pachoda on its right over undulating slopes to Doondgaon, it keeps over high swells to Tankah, and crosses a mountain stream a mile S. of Untervully, and joins the highroad from Jaulna to Sholapoor half a mile north of Mankulla, distance 36 miles.

The road from Aurungabad to Ellichpoor enters the circar in latitude $19^{\circ} 54' 53'' N.$ and longitude $75^{\circ} 31' 30'' E.$, ascends along the base of table hills, crosses a ridge half a mile S. of Walthodee, takes an easterly course across a mountain stream and gains the village Bungaon ; descending along a nulla it crosses a ridge of hills at the small village Morumba, then winding over gentle slopes gains the town of Land Sangvi, a stage for troops, situated on the right bank of the Doodna river ; crossing and proceeding north-easterly it crosses two small nullas in its progress to Sirusgaon, then keeping in the same course it ascends a high table ridge, then descending it crosses several ravines and keeps along the base of table hills ; then passing close by Dourgaon and Kenola it gains the town Dhabaddy, a stage for troops ; proceeding north-easterly between two detached hills and gaining the village Pipulgaon it passes over gentle slopes, meets the village Kotay, ascends a high broad swell, meets the village Mahdeo-chundhoy, then crossing a large stream quits the circar in latitude $20^{\circ} 6' 18'' N.$ and longitude $75^{\circ} 55' E.$, after having traversed a distance of 28 miles.

Mountains and Hills.—The portion of country occupied by hills in this circar is nearly one-eighth, or 300 square miles ; the high range N. W. of Jaulna and those immediately in the neighbourhood of the villages Peepelkotah, Land Sangvi,

HYDERABAD AFFAIRS.

Nandra, Maholee, Golagaon, Peepree, Kussannair and Umbad are remarkably high and steep, of a barren nature, scantily scattered over with a kind of dwarf jungle, which gives it a rugged appearance; those about the north and north-east of Jaulna are high rugged table hills almost of an open nature; the length of the range from east to west measures nearly 40 miles.

Forests, Woods and Jungles.—Partially interspersed with dwarfish babool, a kind of thorny tree.

Cattle and Animals.—The country abounds with deer, elks, wild boars, wolves, jackals, hyænas, panthers, and the chamois goat; domestic cattle of every description are numerous, the sheep being of an inferior kind; few, if any, of aquatic game are to be met with.

(Sd.) A. CHAMARETT,
Sub-Assist. Surveyor,
In temporary charge, Hyderabad Survey.

MEMOIR OF THE PATREE CIRCAR.

Patree Circar, situated principally between 19° and $19^{\circ} 48'$ of north latitude and 75° and $76^{\circ} 6'$ of east longitude, is bounded on the north by the Poorna river and Bassim Circar, on the east by the Poorna river and Nandair Circar, on the south by the Godavery river and Nandair Circar, and on the west by Jaulna and Bheer Circars; its extreme length from east to west is 64 miles, and greatest breadth from north to south 50 miles; it occupies a surface of about 1,596 square miles: of this 630 square miles is under cultivation, principally of dry grain, 797.89 miles consists of fallow lands and poor and unproductive soil, and about 169 square miles is taken up by hills and jungles.

Pergunnas.—The Circar is divided into 12 pergunnas, viz., Havalee, containing 139 principal and 1 subordinate village, Ashta 25 principal villages, Purbaney 69 principal and 1 subordinate village, Valoor 16 principal and 1 subordinate village, Kowsuddy 18 principal villages, Neelburrein Takli 20 principal villages, Koomburrein Takli 1 principal village, Logaon 50 principal and 1 subordinate village, Pachulgaon 21 principal and 1 subordinate village, Jintoor 47 principal and 3 subordinate villages, Jheroy 25 principal villages, and Bogaon 1 principal and 1 subordinate village, making a total of 442 towns and villages; all of any size or importance are described below.

Principal Towns and Villages.—Patree, in latitude $19^{\circ} 15' N.$ and $75^{\circ} 29' 23'' E.$ longitude, and capital of the Circar, is a large walled town containing about 2,000 houses with a population of between four and five thousand, of whom nearly one-half are Mahomedans; there are 15 bazar shops, and a coarse description of paper is manufactured in the town, but not to any great amount; the weekly market is held on Thursdays. The ordinary garrison consists of about 100 irregular sepoys and 50 Arabs, and about double that number during the annual visit of the Talookdar, who usually resides in the town for two or three months after the conclusion of the monsoon, while engaged in collecting the revenue of the pergunna.

Ashta, in latitude $19^{\circ} 22' 30''$ north and $75^{\circ} 16'$ east longitude, and on the highroad from Jaulna to Mominabad, is cusba of the pergunna of the same name; it is a large straggling town of an oblong form; the walls, which are very extensive, are, with the exception of the two principal gateways, in a ruinous state, and a very large portion of the area within the town is occupied by ruins and rubbish. The bazar consists of a few bazar shops and there is a weekly market on Fridays; the garrison is about 50 irregulars and a few Arabs.

Purbaney, cusba of the pergunna of the same name, in latitude $19^{\circ} 16' 25''$ north and longitude $75^{\circ} 48' 35''$ east, and on the highroad from Jaulna to Nandair, is a large irregular walled town containing about 3,000 houses, and is the residence of a Naib, who has charge of five adjoining pergunnas, on the part of Pestonjee Parsee, soucar at Hyderabad. There are several substantial edifices of stone and brick in the town, occupied by opulent soucars and others who carry on a lucrative trade and export considerable quantities of cotton and grain, the former to Bombay and the latter to Hyderabad. The weekly market commences on Friday and continues through part of the following day, the business of the first day being confined exclusively to the sale of cattle; coarse cloth, cumblies, brazen utensils, &c., all manufactured in the town, as well as provisions and vegetables, are disposed of on the second day. The town is garrisoned by 100 infantry sepoys, 75 irregular horse and 50 sepandey peons.

Valoor, in latitude $19^{\circ} 29' 7'' N.$ and $75^{\circ} 36' E.$ longitude, is cusba of the Valoor pergunna, and situated on the highroad from Jaulna to Hingolee; the town, as well as the greater portion of the pergunna, is held in jaghir by Gholam Hussain Khan, an officer of the Nizam's Court; it consists of about 500 houses, is surrounded by a wall and has three small forts or citadels within the town, all much out of repair; some extensive date groves south-west of the town yield a considerable revenue. The garrison consists of about 200 irregulars, horse and foot.

Kowsuddy, cusba of the Kowsuddy pergunna, is in latitude $19^{\circ} 28' 30''$ N., $75^{\circ} 44'$ E. longitude, and on the highroad from Jaulna to Hingolee; it consists of about 400 houses and several well-supplied bazar shops. The town is walled round and contains a small inner fort, but it is at present in a very ruinous state.

Neelburum Takli, cusba of the pergunna of the same name, is in latitude $19^{\circ} 24' 45''$ N., longitude $75^{\circ} 37' 35''$ E., and situated on the banks of the Doodna river; this was formerly a large and populous place, but is now reduced to a mere hamlet containing only about a dozen miserable huts; the business of the pergunna is transacted at Necrlua, about a mile and a half south-west from the cusba.

Koombakurreen Takli, a large town, and a pergunna in itself, is situated in $19^{\circ} 20' 30''$ N. latitude and $75^{\circ} 47' 30''$ E. longitude; it is surrounded by a mud wall and has a lofty inner fort of the same material, but both walls and fort are in a very ruinous state. There are numerous and extensive groves of mango trees in the vicinity of the town.

Logaon, cusba of the Logaon pergunna, is in latitude $19^{\circ} 8' 35''$ N. and $75^{\circ} 50' 45''$ E. longitude, on the highroad from Mominabad to Hingolee; it consists of about 200 houses and a few bazar shops, and is garrisoned by a few Arabs. The weekly market is held on Sundays.

Pachulgaon, in latitude $19^{\circ} 33' 35''$ north, and longitude $75^{\circ} 42' 15''$ E., is cusba of the pergunna of the same name; this village consists of about 150 houses, and, like most of the villages in the pergunna, is in a decayed and ruined state.

Jintoor, cusba of the Jintoor pergunna, is situated at the base of a ridge of lofty hills (a branch of the Neermul range), in latitude $19^{\circ} 36' 30''$ N., longitude $75^{\circ} 43' 30''$ E.; it is a well-populated town and contains about 600 houses and several bazar shops.

Manwuth is a large and thriving town situated on the highroad from Jaulna to Secunderabad, and in latitude $19^{\circ} 18'$ N., longitude $75^{\circ} 32' 23''$ E.; it contains from 400 to 500 houses and is surrounded by a mud wall. Here are many opulent soucars, about 30 petty Bunnias, 65 weavers, 10 cloth merchants, 35 silk looms, 25 dyers, 20 oil manufacturers and 2 braziers; a number of Jain pagodas are to be seen in the vicinity of the town, the largest of which is opposite the western gate; the town is surrounded by numerous groves of mango trees and betel gardens; a market is held once a week, on Thursdays, when cattle, cloths, pulse, and grain of every description are procurable.

Paidgaon is a large market town under the cusba of Parbaney, and situated on the trading road from Jaulna to Nandair, in latitude $19^{\circ} 19' 37''$ N., longitude $75^{\circ} 42'$ E.; it contains about 300 houses, and has very extensive groves of mango trees in its vicinity.

Peepulgaon, of Patree pergunna, is situated at the junction of the highroads from Jaulna and Nandair, and in latitude $19^{\circ} 24' 2''$ N., longitude $75^{\circ} 32' 7''$ E., it consists of about 150 houses and a few Bunnias' shops.

Pingh, a large and well-populated market town situated on the road from Mominabad to Hingolee, and on the trading road from Jaulna to Nandair, in latitude $19^{\circ} 12' 45''$ N., longitude $75^{\circ} 54' 2''$ E.; the town contains 300 houses.

Poongla, formerly the seat of the cutcherry of Jintoor, is situated in latitude $19^{\circ} 35' 14''$ N., longitude $75^{\circ} 45' 32''$ E., and at the base of a high ridge of hills; it was formerly a large and very thriving town, but is now half-deserted, and the whole of the lands attached to it are neglected and overgrown with jungle.

Forts, Hill Forts and Droogs.—There are no forts of any strength or importance in the Patree Circar, though there is scarcely a village, large or small, without its defensible post, generally a small ghurry constructed of a square form, of mud, with flanking towers at the angles; few of them possess any strength, and as they were mostly built in a hurried and careless manner, as places of refuge during the period of the Pindaree incursions, they are now, with but few exceptions, in a ruinous and dilapidated state. There are no hill forts or droogs in the Patree Circar.

Mines, Minerals and Manufactures.—There are no mines or valuable minerals

in the Patree Circar, and the manufactures are confined to coarse cloths, cumbles, an inferior description of paper, gunnies, brass utensils and common coarse sugar or jaggry, but all to a very limited extent, and generally for home consumption or sale at the several weekly markets held in the larger towns of the Circar; grain is the only commodity that is exported to any considerable amount.

Hills and Jungles.—A rather lofty ridge of hills part of the Neermul range extends for about 25 miles along the northern boundary of the Circar; they are covered with a low thorny jungle intermixed with a dwarfed variety of the teak tree, but have no marked or peculiar features requiring a detailed description.

The Circar with the exception of this narrow belt is an open plain country with a few low isolated table hills scattered over its surface.

Cattle and Animals.—The ordinary domestic animals are tolerably abundant in the Circar, but generally of inferior breeds and diminutive in size. With the exception of the antelope, which is found in numerous herds on the banks of the Godavery and Doodna rivers, but few wild animals are to be met with; the tiger and cheetah are sometimes, though rarely, seen in the hilly tract of country near the northern boundary of the Circars.

Lakes, Tanks and Reservoirs.—There are no lakes in the Patree Circar, and with the exception of a few small cattle ponds it is quite destitute of tanks or reservoirs of any description. River water is generally used for all culinary purposes, that procured from wells being commonly brackish and unwholesome.

Population.—As my instructions do not authorize any direct inquiry as to the amount of the population, my information upon this point is necessarily imperfect, but, judging from such as could be obtained, it may be estimated at above 3,000 souls; of these about one-sixteenth are Mahomedans, the remainder Dhers, Mangs and Mahrattas, the last-named being by far the most numerous class.

Rivers.—The Godavery, Poorna and Doodna are the principal rivers that flow through the Patree Circar.

The portion of the Godavery river which forms the southern boundary of the Patree Circar and separates it from Nandair and Bheer Circars has already been described in the descriptive memoirs of those Circars.

Poorna River.—The Poorna river enters the Circar in latitude $19^{\circ} 44' N.$, longitude $75^{\circ} 46' E.$, about a mile south of the ruined village of Nimbala, and proceeds in a south-easterly direction for 38 miles, forming several abrupt and serpentine bends in its progress, and passing by numerous villages on both banks to Deyguz; at this place it turns abruptly to the southward, and keeping the same general direction for about 20 miles receives the Karpooa nulla near the village of Sangvee; pursuing the same direction for about 6 miles further it receives the Doodna river, in latitude $19^{\circ} 17' N.$ and longitude $75^{\circ} 58' E.$; from its junction with the Doodna the general direction is south-easterly for about $3\frac{1}{2}$ miles, when it receives the Damodee nulla, and from thence inclining still more to the eastward continues on the eastern boundary of the Circar, a distance of about 10 miles; it crosses the boundary and flows for about 2 miles in the Nandair Circar, when it again turns to the southward and flows in this direction along the eastern boundary of the Patree Circar for about 5 miles up to its junction with the Godavery, in latitude $19^{\circ} 6' N.$, longitude $76^{\circ} 4' E.$ The banks of this river throughout its course past the Circar are abrupt and precipitous, and have an average height of 15 feet above the bed of the stream; the latter is sandy in the open and plain country with a general width of about 2 furlongs, in the hilly tract along the northern boundary it is more confined, and presents an irregular and rocky surface; the river retains water throughout the year, though small in quantity except for a short period during the very height of the monsoon, when it is filled from bank to bank and flows with a strong and rapid current.

Doodna River.—The Doodna river crosses the boundary of the Circar in latitude $19^{\circ} 30' N.$ and longitude $75^{\circ} 32' E.$, and after a very winding course of about 35 miles, the general direction of which is easterly, and receiving numerous smaller streams in its progress, it falls into the Poorna river, in latitude $19^{\circ} 17' N.$

HYDERABAD AFFAIRS.

and longitude 75° 58' E. ; the bed of the river in its passage through the Circar is with few exceptions sandy, and about 10 feet below the level of the surrounding country ; for about eight months in the year the supply of water is extremely scanty, and though the river is occasionally well filled during the prevalence of the monsoon, it is seldom impassable for more than two or three days together ; but little use is made of this river for the purposes of irrigation.

Roads.—The principal roads by which the Patree Circar is intersected are described in detail in the annexed Table of Roads.

HIGHROAD FROM HYDERABAD TO JAULNA.

	Bearing.	Miles.	Fur.	Yds.
The highroad from Hyderabad to Jaulna enters the Patree Circar at Gungar Khair, on the Godavery, and crossing the river passes Dharkhair and Moollee.	N. 15°00 E.	2	0	0
Quitting Moollee it pursues a north-westerly course over undulating ground, crossing three ravines in its progress to Songaon and thence to Soyalla	N. 21°00 W.	1	6	0
Its course from thence is due north, crossing a large nulla half a mile north of Soyalla it passes over undulating ground to the village of Doandy.....	N. 21°00 W.	0	6	0
It thence proceeds over rocky swells in a north-easterly direction, crossing the heads of two small ravines to Amba Takli, where there is encamping ground for troops	Due north.	2	6	0
From Takli it assumes a north-westerly course over broad swells to Pangry.....	N. 21°00 E.	2	2	3
Thence it proceeds over undulating slopes, and crosses a nulla close E. of the village Budda Boarwan	N. 25°30 W.	1	6	0
Leaving the village it passes over a height to a ruined hamlet on the left bank of a large stream	N. 54°00 W.	2	5	0
It quits the ruined village and proceeds N. for a mile over high swells, thence N. W. to Baboolgaon	N. 34°00 W.	2	0	0
From whence it takes the same course and crosses a nulla 1 mile W. of Baboolgaon, thence to Manda Kully, stage for troops	N. 37°00 W.	1	5	0
It then proceeds over high undulating ground in a north-westerly direction, crossing several small streams in its progress to Palvuthee.....	N. 22°00 W.	1	0	0
Thence, keeping over similar heights and in the same direction, it crosses a large nulla 2 furlongs S. of the village Sawalli	N. 58°30 W.	2	0	0
From the last-mentioned village it runs over high swells, crossing a number of small nullas, to Huttulwaddy	N. 82°00 W.	1	0	0
It proceeds from thence in a north-westerly direction, crossing a nulla 1 mile west from it, and afterwards gains the large town of Manwuth, where there is good encamping ground for troops and supplies are abundant	N. 68°00 W.	2	4	0
Leaving Manwuth the road passes close north of the town, crossing a nulla half a mile distant, and proceeds in a north-westerly and north direction over undulating slopes, crosses a large nulla and passes west of the village of Karinja	N. 65°00 W.	2	4	0
It thence proceeds in a north-easterly direction over flat ground and crosses the heads of several ravines and a large stream close east of Pcepulgaon.....	N. 73°00 W.	1	0	0
Thence passing round the north side of the town it crosses the Kussoora stream 2 furlongs N. W. from the village of that name, it then proceeds over a very broad flat to the height, and in its progress crosses three small ravines up to the boundary between Jaulna and the Patree Circar, which it quits in latitude 19° 2' 7" N. and longitude 75° 29' E.	N. 20°00 W.	1	4	0
	Due North.	1	4	0
	Due North.	1	4	0
	N. 6°00 E.	2	4	0
	N. 49°00 W.	3	2	0

HIGHROAD FROM MOMINABAD TO HINGOLEE.

The highroad from Mominabad to Hingolee enters the Circar at Gungakhair, and crossing the Godavery river passes through the villages Dharkhair and Moollee. From thence it takes a north-easterly course over undulating slopes, and crossing two small streams passes east of Mhalsonna	N. 15°00 E.	2	0	0
Quitting Mhalsonna it keeps over easy slopes in a north-east-by-east direction, crosses the Kudky nulla in its progress 2 furlongs south of the town of Toolah	N. 29°00 E.	1	0	0
Thence taking a south-easterly course over undulating ground it crosses a large stream to the village of Renkapoor, leaving the village it proceeds in the same course along a nullah to Padgaon, a large walled town and stage for troops..	N. 13°30 E.	2	4	0
Passing through the town it keeps over undulating ground in a north-easterly direction and crosses the Pingulgud stream to Pingly, which is also an encamping ground for troops and a tappal stage	N. 34°00 E.	1	6	0
The road keeps in a northerly direction for a short way, then proceeds N. E. over undulating slopes and crosses two nullas to a small ruined hamlet	N. 41°30 E.	2	0	0
Leaving the small village it crosses the Damooder river at 4 furlongs, and proceeds in a N. E. by E. direction over undulating slopes, crossing several small streams in its progress, to Pandree, situated on the right bank of the Poorua river.....	N. 22°00 E.	1	4	0
Thence it crosses the river to Nandgaon, on the opposite bank, proceeds north-easterly, crosses a nulla and quits the Circar in latitude 19° 18' N., longitude 75° 57' E.	N. 22°00 E.	2	4	0
	N. 33°30 E.	4	4	0
	N. 19°00 E.	4	0	0
	N. 50°00 E.	2	0	0
	N. 30°00 E.	1	6	0

THE TRADING ROAD FROM NANDAIR TO JAULNA.

The trading road from Nandair to Jaulna enters the Patree Circar in latitude 19° 11' N., longitude 76° 3' E. ; crossing a nulla to Koojooda it proceeds in a westerly course over high swells, and crossing another small stream at 5 furlongs it keeps on a high swell for a mile, where it passes S. of a small village, from thence over a broad height to Kambagaon	S. 88°00 W.	4	0	0
---	-------------	---	---	---

PHYSICAL FEATURES AND NATURAL PHENOMENA.

	Bearing.	Miles.	Fur.	Yds.
then pursues a north-westerly course, crossing two ravines and over a swell, to Boalsa	N. 86° 00' W.	2	0	0
Quitting the village it crosses two streams in its progress to the village Meerkul, situated on the Ringulgudda stream	N. 73° 00' W.	1	3	0
From thence it continues in the same course over undulating slopes, crosses a ravine and proceeds to Pingly, a large trading town	N. 45° 00' W.	1	4	0
From thence the road keeps at the base of a very high swell and crosses a nulla at 1 mile 7 furlongs, from thence, winding over undulating ground, crosses two small nullas in its progress to Khanapoor	N. 61° 30' W.	1	7	0
It passes S. of the village and crossing several small ravines gains the S. gate of Purbaney. This is a large trading town and is the residence of the Sur Despondia. Many opulent soucars have their residence in the town and carry on an extensive trade with the city of Hyderabad and the surrounding districts. Supplies abundant	N. 55° 00' W.	4	3	0
Quitting the western gate and keeping along the fort wall for half a mile, it ascends a broad slope in a north-westerly direction and continues on to its summit, passing near a stone-built well at 2½ miles and another at 5½ miles, it thence proceeds to Paidgaon, a large market town.....	N. 50° 00' W.	2	4	0
Passing close south of the town it keeps in a similar course and crosses a large stream at 2 miles 3 furlongs, then ascends a high swell to Boregaon.....	N. 47° 00' W.	1	3	0
From thence it takes the same course and crosses a stream west of the village 2½ furlongs, then ascends a gentle swell passing over several ravines and by a ruined village, and crosses another large stream 4 furlongs east of Hoollah	N. 66° 00' W.	7	0	0
Leaving the village it passes over an undulating country and crosses a large stream at 1 mile 4 furlongs, then keeping in the same course over high swells it crosses a small nulla and joins the high military road at the village of Peepulgaon, in latitude 19° 24' N., longitude 75° 32' E.	N. 80° 00' W.	4	0	0
	N. 63° 00' W.	4	0	0
	N. 48° 00' W.	4	4	0

THE HIGHROAD FROM MOMINABAD TO JAULNA.

The highroad from Mominabad to Jaulna enters the Circar in latitude 19° 16' N., longitude 75° 20' E., crosses the Godavery river and proceeds north-westerly from Muddazgaon over high undulating slopes and a richly cultivated country to Bosce	N. 37° 00' W.	2	4	0
Passing east of Bosce it crosses a small nulla, and proceeds over high slopes to the village Poolwaddy. Here the road proceeds in a northerly direction over low heights crossing two ravines in its progress, and gains the south-east gate of Ashta. The cusba of the pergunna is in a ruined state, and supplies are with difficulty to be procured	N. 12° 00' W.	1	4	0
From thence in a south-westerly course over undulating ground, and crossing two small streams, to Jartwaddy, a small hamlet	N. 14° 30' W.	1	4	0
From thence in the same course for about 1 mile, when it turns nearly due north, and proceeding in that direction for about 1 mile further quits the Circar in latitude 19° 28' and longitude 75° 14' east.	N. 39° 30' W.	0	4	0
	N. 17° 30' W.	2	0	0
	Due west.	0	4	0
	N. 31° 00' W.	1	0	0

(Sd.) H. MORLAND, Captain,
In charge Hyderabad Survey.

NELGOONDAH CIRCAR.

Area.—The portion of the Nelgoondah Circar lying within the limits of the present survey comprises an area of 1,217½ square miles, of which 134½ square miles are wet cultivation, 191½ square miles dry grain, 33½ square miles of hills, and 857½ square miles of swells covered with jungle.

Villages.—The principal villages are the following :—

Sooriapett, situated on the military road from Masulipatam to Hyderabad, consists of about 350 houses. It has a guddy, and was formerly totally surrounded with a mud wall, the remains of which are still visible. There is a large musafer-khana at its western entrance.

Ammunagullo is a large village consisting of about 400 houses. Kanserabad, Yacnoomellapully, Agga Moatkoor, Mandialla, Hyetteepamla, and Moolookoontla each contain about 300 houses. Soleepett, Eadaloor, Munnymedday, Iddukuddypad, Ponagoad, Tippurty, Charnawula, Beathoal, Sungum, Yelgoopully, Toongaloory, Jajureddygoodum, and Chittaloof each contain from 100 to 150 houses. Tudla Ramalla, Cherlopully, Tope Cherlah, Sulkanoor, Bomakull, Ravellapenbah, Indoo-gullah, Tukellapad, Umawarrum, Gurdapully, Machawarrum, Neldhunda, Kulloor, Somawarrum, Nairudecherlah and Burgudda each consist of 50 to 60 houses.

Oondragoonda, although the kusbah of the pergunnah of that name, is in ruins. Its site is pointed out by an old mosque at the east foot of the hill.

Nagoolapad and Oorlagoonda, the kusbahs of the respective pergunnahs of their names, have only a few miserable huts. The other hamlets are too small to require enumerating.

Tanks.—The tanks at Cherlopully, Pangull, Boorgudda, Hyetteepamla, Ammunagullo, Madawarrum and Gowrawarrum are large, and have strong and high bunds faced with stones. Those also at Uddagoodoor, Moolookoontla, Nomulla, Mandialla, Pillelmurry, Sooriapett, Namawarrum, Kottypad, Nemmikull and Yainopamla are good-sized and well-made tanks. The rest are small. At almost every village are to be seen one or more tanks, sometimes of considerable size, with broken bunds, which would cost but little to put them in repair. It is to be hoped that the security held out to private property, and other salutary encouragements to industry which have of late years been adopted, will soon work a change in this respect. Although this spirit has even in these bad times begun to show itself, yet it will require many successive favourable seasons to renew all that are available.

Rivers and Watercourses.—The principal river which runs through this portion is the Moosy, which enters from the west, and after keeping an easterly course till within a short distance of the Arwapully hills it is joined by the Bikellair from the northward and suddenly takes a S. S. E. direction, which it preserves till its junction with the Kistnah. Its average breadth here is about 200 yards, its channel sandy and its banks low. Its depth when full may average about 10 to 12 feet. It flows for eight months of the year, and is of very great use in the irrigation of the adjacent lands, which is accomplished by motes and watercourses. At its entrance into the Deverkondah Circar the Moosy is joined by a large nullah from the west—the Pallair, which rises in the Uddagutt hills, also traverses a small portion of the N. E. part of this Circar in a southerly direction, and is joined by another stream, also called the Pallair, a few miles above the station of Oorlagoonda. It varies in breadth from 50 to 80 yards while within this Circar; its bed is sandy, and its banks steep and abrupt. It is when full about 8 feet deep, and flows for six months. It is of scarcely any use in irrigation, excepting by occasional motes erected on its banks. The tract which it traverses having suffered extremely in the last famine, which almost entirely depopulated it, the few watercourses which were then serviceable are now long since choked up, and in many places almost obliterated.

Many watercourses are cut along the Moosy for the purpose of irrigation.

Being generally carelessly dug, they require constant attention to keep them open ; the consequence is that, from want of means or want of care, there are a great number of them completely choked up. One of these watercourses, called the Raz Kalwe, is carried across the country from the Moosy to the Pangull tank, a distance of more than 25 miles. It has been for many years choked up, and is now totally useless. It might be cleared again at a very trifling expense—a circumstance much to be wished for, as the country it traverses is fertile and well adapted for wet cultivation.

A valuable watercourse might be carried at a little expense from the Moosy near Oopulpad to the large tank at Ammunagullo, by which means a very large tract of paddy might be cultivated throughout the year. An expensive stone and lime bund was a few years ago built across the Pallair near Modjoethpoor, from whence a watercourse was cut towards the Golapad tank ; however, when too late, it was discovered that the levels had not been properly conceived, and consequently that the water could not be conveyed. Till lately so little has been the inducement to industry that those works which were executed while the country was in better circumstances are now left to go to ruin.

Hills.—The only hills of any height or extent are the Arwapully, Kandugutta and Oondragoonda ranges. They are all rocky and covered with jungle, which affords wood for house-building and implements of husbandry. There are numerous low detached rocky hills, but they do not demand description.

Droogs.—The principal droog within this circar is that of Oondragoonda, which consists of several peaks connected with lines of solid granite wall of great extent, as will be remarked by inspecting the plan. It would be in vain to attempt to trace the real founder, as it is very improbable that it should have been finished by one prince. In fact little or nothing of its history appears to be known by the present neighbouring inhabitants, excepting as being the retreat of banditti who have for many years committed many depredations on the highway to Masulipatam or Madras by Condopully and Guntoor. Having been long neglected, it is now covered with jungle, and is the resort of tigers, bears and many other wild animals and beasts of prey.

Ooragoonda is a high rocky and precipitous hill, with a wall encircling its summit. It is only accessible on the north-east side, and then with much difficulty. It has been for many years in ruins, and is the haunt of bears, cheetahs and other wild animals—consequently never ascended by the present inhabitants of the village.

Roads.—The roads passable by wheeled carriages are those from Hyderabad to Kummammitt through the northern portion, to Masulipatam through the centre, and to Madras by Nelgoondah through the southern portion. The rest are merely footpath communications from one village to another, and in many parts scarcely passable on horseback on account of the thickness of the jungle.

Ancient Buildings.—There are Jain pagodas at the villages of Pillelmurry, Yainoomullapully, Poonagood and Goodavud. The sculpture is very superior, of black granite in *alto-relievo* and beautifully polished. There are no other ancient buildings of any consequence.

Modern Buildings.—The only modern buildings which require mention are the moosafirkhanas which were erected for the convenience of travellers by Meer Allum, the late prime minister, about 20 years ago, at each stage along the road from Hyderabad to Masulipatam, and also as far as the Kistna on the road to Madras. On the Masulipatam road they are to be found at the villages of Hyetteepamla, Sooriapett, Moongall, and Khodhandoo, and on the Madras road at the villages of Tippurty, Meerialgoodum and Wajerrabad. They are spacious and handsomely finished of stone and chunam. The plan is an oblong court with a large and handsome gateway in the centre of the short side facing the east, and a mosque on the opposite side. The two longer sides, facing the north and south, consist of about 25 or 30 small separate rooms for travellers.

Cultivation.—The causes which have contributed to reduce the country to its present depressed state have, of course, borne hardest on agriculture. The consequence is that the present extent of cultivation falls far short of what the older

inhabitants of every village state it to have formerly been ; at present the proportion of cultivated to waste land in this tract is as 1 to 4 nearly.

Population.—The number of inhabitants to a square mile is, however, greater than in either of the other two Circars, and the villages are generally larger ; 36 may be allowed to the square mile in this Circar.

Minerals.—Iron ore is found in the Arwapully, Oondragoonda and Kundulgutla hills. The ore found in the Arwapully and Kundulgutla hills is smelted at the village of Beatkoal and the neighbouring hamlets. It is very coarsely smelted, and is sold to the neighbouring villagers in small pieces of 5 or 6 lbs. weight. Before it can be rendered properly malleable each piece will have lost sometimes half its weight, and always more than one-third. The ore found in the Lingagerry hills is smelted at the village of Yatavoykillah, in the Deverkondah Circar.

DEVERKONDAH CIRCAR.

Area.—That portion of the Deverkondah Circar coming within the limits of this survey comprises an area of 487 $\frac{3}{4}$ square miles, of which 25 $\frac{1}{4}$ square miles are of wet cultivation, 97 $\frac{3}{4}$ square miles of dry cultivation, 52 square miles of hills, and 312 $\frac{3}{4}$ square miles of slopes covered with jungle.

Villages.—The principal villages are the following, viz., Deyvulpully, the cusba of the pergunna of that name, a large village consisting of about 90 houses. It is the residence of the Deyspandy, and was formerly much more extensive and important than it is at present, as may be imagined from the ruins of domes, mosques and pagodas to be seen in its neighbourhood, and which appear to have been at one time included in the village. It is situated on the highroad to Madras.

Meerialgoodum is also a considerable village and is the residence of a Deyspandy. It consists of about 130 houses thatched with palmyra leaves, and has a good guddy in the centre. It is situated on the Madras road, and has a mosque or musaferkhana built by the late Minister, Meer Allum.

Wajerabad is a tolerably large village, and is the cusba of the pergunna of that name. It is situated on the Madras road at the junction of the Moosey and Kistna. It consists of about 130 houses. The guddy is in a state of decay. There is a neat pagoda at the north side of the guddy, and a musaferkhana built by Meer Allum towards the Kistna, where there is a ferry.

Chittialla, the cusba of the pergunna of that name, is situated at the junction of the Pairoor and Kistna. It is in a very declining state, and has nothing worthy of description.

Damercherla, situated on the Madras road, is a tolerably thriving village, and consists of about 100 houses. Davallpully, Lunjapully, Yamulpully and Allakuddapoo are considered large villages ; they consist of about 90 or 100 houses each, and have nothing worthy of remark. The following villages are residences of Deysmooks, viz.:—

Jellarpocum, consisting of 40 houses.

Moodoomanikum, consisting of 80 houses.

Booriapollium, consisting of about 70 houses.

Palkanud, consisting of 80 houses.

Peddannud, consisting of 100 houses.

Kulmacherroo, consisting of 50 houses.

Yatavoykillah, consisting of 100 houses.

The following are the only remaining villages in this Circar which are worthy of notice, and consist of from 40 to 50 houses each, viz., Toomadum, Rajawaram, Kondrapoal, Beejakull, Kokadum, Dirchinerla and Chittapully.

Tanks.—The only tanks in this portion deserving of notice are those of Deyvulpully and Meerialgoodum, the former of which in ordinary seasons contains water throughout the year, and nourishes about 2,000 kandies of paddy ; the tank at Meerialgoodum, although large, retains water for about six months only. The tanks at Kokadum, Yamulpully, Rodrawarrum, Allakuddapoo and Kondrapoal are of considerable size, and have all high bunds faced with stone.

River.—The principal river flowing through this portion is the **Moosey**, which enters it at about 15 miles from its junction with the Kistna at Wajerabad or Waddapully. For the first 7 or 8 miles it is of considerable use in the irrigation of the adjacent lands on its right bank, the rest of its course is through hills and jungle. Its average breadth is about 350 yards; its depth when full generally about 12 feet. Its channel commences to be rocky about its entrance into this circar, and continues so to its junction with the Kistna.

The Pairoor river passes through a small part of the S. W. portion. Its course is principally among the Amarabad hills to its junction with the Kistna. Its channel is from 180 to 200 yards wide, sandy and shallow till near the junction at Chettial, where it becomes rocky, and its banks high and abrupt. Its depth is about 12 feet when full, and it runs for seven months of the year. A small nulla traverses a fertile tract from Pangull to a few miles below Deyvullapully; and in the event of the watercourse called the Raz Kalwe being reopened it would enable the inhabitants to cultivate rice to a great extent throughout the year. Even under present circumstances it is rendered useful for five and sometimes six months of the year. It joins the Kistna about 6 miles west of Wajerabad.

The Kistna forms the southern boundary through the whole extent, and is generally from 4 to 4½ furlongs in breadth, and average depth about 25 feet when highest. It is fordable in most places for two to three months of the hot season. It is the general receptacle of the foregoing streams.

Hills.—The eastern portion of the Amarabad hills are the only ones in this tract. They are high, steep and covered with jungle.

Roads.—The highroad from Hyderabad to Madras by Nelgoonda passes through Kokadum, Meerialgoodum and Kondrapoal to Wajerabad or Waddapully, where it crosses the Kistna into the Company's country.

Another road from Nelgoonda passes through Deyvullapully, and joins the former at Meerialgoodum; the other roads which appear in the plan of this portion are not passable by wheeled carriages.

Modern Buildings.—There are no modern buildings worthy of remark, excepting the moosafarkhanas built by Meer Allum along the road to Madras as far as the Kistna. Those within this portion are at the villages of Tepparly, Meerialgoodum and Wajerabad or Waddapully.

A DESCRIPTIVE MEMOIR OF PART OF THE DEVURKONDA CIRCAR, COMPRISING THE WHOLE OF THE HAVALY AND MARAPULLY AND PORTIONS OF THE SURREYKONDA, INDOORTY, PAIROOR AND CHITTIAL PERGUNNAS.

Situation, Area and Boundaries.—This part of the Devurkonda Circar lies in latitude 16° 27' 17" to 17° 2' 12" north and longitude 78° 40' 35" to 79° 27' 54", and comprises a superficial area of 1,702 square miles, 124 of which is paddy lands, 351 of dry grains, 354 of mountains and hills, 873 square miles of slopes.

It is bounded on the north and north-east by Bonagheer and Nelgoonda, on the S. E. by Palnad, south by Ghunpoora Circar, and on the west in continuation of the last year's survey of the Devurkonda Circar.

Divisions and Subdivisions.—The Circar or province is divided into pergunnas or districts, and these are again divided into talooks or putties, meaning subdivisions. Each talook or putty has several mouzas, which is a collective term answering to townships. They comprehend a greater or less number of dependencies, and these are termed muzras by the cutcherry, or goodums by the generality.

Climate.—In winter it is salubrious. A few months previous to the setting in and close of the rainy season, which takes place from July to September, they are favoured with some showers. April, May and the beginning of June in summer are dreadfully hot, attended by sudden blasts of wind so excessively disagreeable as to form into thick columns and frequently tear up the tops of huts. The climate, however, may be reckoned as very healthy. The dew lasts for about three months, commencing in November, and is very heavy and chill.

Mountains and Hills.—A vast mass of mountains irregularly crowded together

on the north-west is divided into two ranges ; the northern one is a continuation of the Rajkonda and Arootla mountains, which has been described last year. The southern one is called the Surreykonda range, which is very high and steep to the south ; one of these tops is Colonel Lambton's primary station, the elevation of which is computed to be 2,368 feet above the level of the sea ; these run in a S. E. direction for about 20 miles ; all are detached, steep, have rocky summits, and some covered with jungle. The valley between them is very broad and fertile ; several villages are situated in it and well inhabited ; the stream passing through is supplied by the rains, but it does not long retain water.

To the west are seen scattered hills proceeding from the above mountains in a S. E. direction connected with the ghauts or Nullamulla mountains north of the Dindee. The most conspicuous tops are Charakonda and Gonavanpully ; others are seen scattered over the valley, of which Devurkonda is the highest, being 1,494 feet above the level of the sea. Its summit forms a small table and is fortified.

The Nullamulla mountains to the south, connected with that of Ghunpoora, are divided into two distinct ranges, by the rivers Dindee and Pedda-vag, forming two regular steps ; they present a wild and fanciful aspect ; their summits are perfect tables, clothed with wood ; their ridges present inaccessible walls, and most parts are encompassed by a rude fortification said to have been constructed in the days of Prutta Buddradoo, the then sovereign. It was once inhabited, but at present the Chittial village alone is thinly peopled.

Black Rocks.—Several veins of black rocks breaking off and uniting at intervals are seen in this part of the country ; the most remarkable is that which commences at the village Woddabutla, at the foot of the ghauts, and runs in almost a north direction for nearly 14 miles, meeting in its course the east extremity of the ridge on which Palleypad station is defined.

One close east of Trimullapen station, issuing from the ghauts, runs in a northerly direction for about 20 miles, where it meets another ridge which proceeds west and unites the Arootla mountains to Chomderpully station.

Forests and Jungles.—It is everywhere covered with low thick jungle, principally of the chundreeka and toomah trees, both thorny : the former answers for the implements of husbandry, buildings, lining wells, &c., the latter is rented to shepherds as food for their goats. The mountains are clothed with impenetrable forests of all the various kinds of trees above the ghauts, which will be described in the Ghunpoora Circar.

Population, Inhabitants, Manners, Customs, Religion and Dress.—The inhabitants of this portion of Devurkonda may be said to amount to 56,166, which gives 33 heads to a square mile at an average of 4 to a house. Though the population may comparatively be considered as extensive, yet the country cannot be said to be well cultivated when compared to the revenue and their present wealth. They are of various castes, viz., Koonbies, Yellamahs, Mussulmans and Brahmins. Their religion, manners, dress, &c., are too well known to require any description.

Manufactures.—Plain and printed cloths are manufactured and dyed by weavers, the coarser kind by Parriars, cumbles by shepherds, bangles at Devurkonda, brass utensils particularly at Chundoor, Arkumpully, and Ghunnapoorum. Palmyra to the north, and date toddy to the south in great abundance. Arrack at Devurkonda, Chundoor, Jadkoal, &c., in small quantity.

The dyed cloths of the Chullavair made at Devurkonda during the monsoon are reckoned to be the best and most durable in the Circar. A vast quantity of castor and gingelly oil is to be had in almost every village, and small supplies of jaggy, saltpetre and gunpowder and leather are also manufactured.

Trade, Exports and Imports.—The trade is carried on with Hyderabad, principally in cloths, ghee, oil, rice, and brass utensils and a small quantity of dry grain. The imports are wheat, salt, supari and cocoanut.

Chief Towns, Villages and Market-places.—Devurkonda, the capital of the Circar, is in latitude 16° 42' 28" north and longitude 78° 58' 4" east, and 57 miles in a direct line S. E. of Hyderabad. It is a hill fortress and has its town at the south foot, enclosed by a ruined mud wall ; the streets

are narrow and crooked; the houses mostly thatched, some terraced and a few one story high; they are all built of mud, the doors are clumsy and narrow and the inner rooms small and dark; their furniture consists of boxes and low cots plaited with rope. In the village there are five mosques, of which one to the east, dedicated to Khader, and that south, to Sooleyman Sahib, have annual fairs; it has about 20 miserable bazars, some shops of tradesmen, merchants and others in which are exposed for sale the produce and manufactures of the country; it is chiefly inhabited by Hindoos and Mussalmans; the Peishcar resides here, and it is the present seat of the cutcherry,—formerly it was at Nusserlabad, which village is now much in ruins.

Chundoor is a well-inhabited village situated close to the south of a rather remarkable stream thickly lined with palmyra; it is encompassed by a ruined mud wall with a guddy to the west, in pretty good order; the village is well laid out, having two good streets intersecting each other at right angles, in the centre stands the cutcherry of the Indoorty pergunna; the guddy is guarded by a few matchlockmen; the village is remarkable for the extensive trade of brass utensils, and the large quantity of toddy it affords, which is transported on tattoos and asses; there are also several weavers, who manufacture plain and printed cloths which are exposed at the market every Wednesday.

Indoorty, the cusba of the pergunna of that name, situated $2\frac{3}{4}$ miles south of Oopulgutt station, and 4 furlongs north of a pretty remarkable stream, is chiefly inhabited by Hindoos, and has a small guddy to the south, fast falling to ruins; its lands are extensive, with 10 muzras; all are well inhabited.

Marapully, the cusba of that pergunna, is situated one mile west of a pretty remarkable stream, and has a guddy of mud, the residence of the Deysmook. It is chiefly inhabited by Yellamawars; there are two pagodas to the east, neatly built, one dedicated to Nursimloo, the other to Ramaswamy, and both have annual fairs.

Surreyconda partakes the name of the pergunna; it is situated at the foot of the hills, and is poorly inhabited and much in ruins.

Pairoor, the cusba, on the right bank of Hullia nuddee, has 6 muzras well inhabited, and the mouza much in ruins.

Chintapully, Teedadoo, Kulcondah, Vinyamoor, Tadkoal, Yellamagoodium, Peddavoral, Unamoola, Veebrampett, Kooreymaid, Murreggooda, Pussanoor, Polliam, Samulpully, Goorumpoad, Koppoal, Marpak, Nampoor, Namapully and Sooriapett are large villages, and each is the residence of a Deysmook or Deyspandy.

Sirsangundla, a small village, is remarkable for a Hindoo temple, on the summit of a flat rock $2\frac{1}{2}$ miles west of the village, dedicated to Ramaswamy; the annual fair takes place on the 7th of Chaitra Soodoonuvammy, corresponding to the 18th of March 1823, which lasts five or more days according as the pools on the rock retain water; to this fair multitudes resort from all parts of the country.

The commodities of 600 bazars and shops are exposed for sale, and goods of great value, such as pearls, precious stones, jewels, cloths, &c., &c., are brought from Madras and the southern provinces.

Heeravunna, of Golkonda, an insulated village (with several subordinates) in the Devurkonda Circar, comprises an area of $24\frac{1}{2}$ square miles. It is large and well populated, with a ruined guddy on the right bank of a large stream. One of its muzras, Jellarkanpully, has several excavated pagodas 5 furlongs south, on the summit of a small hill; the principal is dedicated to Keyshavaswamy, and an annual fair is held on the 15th of Magga Sooda Pawernamee, corresponding with the 24th February 1823, and it is said to have commenced four years ago; the assembly from 5,000 increases yearly. About 200 bazars and shops, where cloths, &c., are exposed for sale. It lasts eight days. This, similar to Sirsangundla, has several pools of fresh water.

Yailushram, a village almost deserted, was once remarkable for the sanctity of its numerous pagodas, and a place of much consequence. It is situated on the left bank of the Kistna river. An annual festival is celebrated in Magga Shewaratree (or the 9th of February 1823) and lasts several days. The pagodas at present are in a wretched and helpless state, and falling into decay.

Suntumpett, which was once a market town, is now much in ruins.

A pagoda one mile S. W. of Simmapoor on a rocky top, dedicated to Nursimloo, has an annual fair, which commences on the 1st of Palgoun, corresponding with the 12th of March 1823, and lasts five days; about 3,000 men assemble from the neighbouring villages; the fair first took place three years since.

Two other annual fairs take place in the Indoorty pergunna—one at Surrempett, dedicated to Nursimloo, and the other at Cherlagoodum, to Neelagundee Ramaswamy; the traffic, as well as the assemblage, is on a grand scale.

Tanks.—Niddavanoor, Gokawarrum, Peddapoor, Peddavora, Namapully, and Ramalingawuttum are said to retain water throughout the year. Chintapully, Devurkonda, Nasserlabad, Palooye, Ootcoor, Marpak, Marapully, Noodakoodak, Reygudda, Yeddookoda, Nampoor, &c., are large tanks which retain water for six months after the rains. Several others are to be seen, all for the use of temporary irrigation. A large tank seen immediately at the foot of the hills west of Indoorty is said once to have retained water after its erection, and nourished to an extent of 3 miles paddy lands, now in ruins. Passanoor, Characonda, Chaypoor, Yachawarrum, Undagoola, Devurkondah, and Pendrypakla have large tanks now ruined.

Rivers.—All these rivers have their sources from the west. The Kistna river forms the S. E. boundary for 27 miles; a greater portion is occupied in the Ghunpoor Circar, an account of which will be found there. The Dindee, which forms the southern boundary, enters from the west in longitude $78^{\circ} 40' 35.9''$, and pursues an east and S. E. course for 47 miles and unites with the Kistna at Domerlagoondee. It traverses rather open country for a few miles east, thence it winds through a large valley formed by mountains, having several villages situated on the bank, which is not high, a sandy bed and a shallow flow of water. The Pedda-vag, issuing from the Gokawarrum tank, descends in a S. E. direction, traverses a rather open cultivated country for 25 miles, where it meets two other large nullas, and from thence between hills and mountains until its junction with the Kistna, 15 miles further, in the same direction, and $1\frac{1}{2}$ miles S. E. of Royawarrum. A fourth of this river, near Kundakoor and Tadkoal, is thickly lined with palmyra; there are several villages situated on its bank, which is low and has a sandy bed.

Four large nullas to the north of the above ones take their rise from the Rajcondah and Arrootla mountains, receiving several tributary streams, and uniting west of Veelrampett form a rather large river which assumes the name of Hullianuddee, proceeds in a south-easterly course and quits the boundary in longitude $79^{\circ} 27' 54.4''$ adjacent to the ghauts. All traverse a well-cultivated and open country, supply several tanks and paddy lands adjoining them, their beds are sandy, and they have low banks; the northernmost one is thickly lined with palmyra.

Roads.—In this part there are no carriage roads; the trading roads are from Yailashram and Domerlagoondee to Devurkonda and Hyderabad, and from Nelgoonda or Devurkonda to Atchumpett; these are much frequented by tradesmen, are pretty good, and offer no impediment for laden bullocks. There are other lesser paths, from village to village, intersecting the country, and of no particular note.

Ghauts or Passes.—There are several paths across the mountains and hills traversed by the inhabitants, all of them are rugged, steep and very difficult of access.

Droogs.—The fortress of Devurkonda is the principal one at present, adjoining the town of that name on the north; it encloses seven distinct tops and has four gates built of huge granite stones and cemented with lime. The line of fortification is very irregular, and may be considered as consisting of two rows round the hill, and three towards the south; they have a number of bastions; within are four pools of fresh water, and several public buildings, granaries, a mint and pagodas; once well inhabited, it is now totally left in ruins. It is said to have been garrisoned by several thousand men under a Killedar, but at present there are only a few Peadas who are under the orders of the Peishcar and reside in the town. A couple of broken cannons are seen dismounted in the

droog; the road ascending it from the town is paved with stones and is the only communication to the summit.

The western and principal part of the droog is said to have been built by a Rajah of the Yellama caste, and the eastern by the Chucklers, some hundred years ago.

Another, at Surreykonda, situated N. W. of the village, is reported as having been remarkable; at present with the exception of a heap of earth and loose stones, several pagodas and mosques and three pools of water, nothing is worthy of notice, or bespeaks its once having been a grand place.

Forts.—Almost every village has a fort, guddy or boorj for its defence; none of them has any appearance of strength.

Soil and Productions.—The soil throughout in general is red excepting the beds of tanks, and paddy glens, which are mixed with black; the former yields koolty, til, yerrandy, gingelly, red jowary, moong, bajera and others of various descriptions, the latter raggy, paddy, chenna, cotton, white jowary, wheat or jow, &c., &c.

DESCRIPTIVE MEMOIR COMPRISING THE WHOLE OF AMRABAD AND PORTION OF THE GODHULL DISTRICTS IN THE GHUNAPOORA CIRCAR.

Situation, Boundaries and Area.—It is bounded on the north by Devurkonda Circar, east by Palnad, south by Kurnool, and west in continuation of the last year's survey of the Ghunapoor Circar. The total area is computed to be 927 square miles, 20 $\frac{3}{4}$ of paddy lands, 41 $\frac{1}{2}$ of dry grain, 277 of mountains and hills, 13 $\frac{3}{4}$ of waste, and 574 of rugged swells and flats. The northern boundary is defined by the Dindec river for 42 miles, common to Devurkonda, the east and south by the Kistna for 41 miles from the east up to longitude 78° 50', occupy an area of 7 $\frac{1}{2}$ square miles throughout its course, which is included in the sum total above mentioned, and to longitude 78° 33' 45"; the river has not been surveyed, owing to the impenetrable forest and mountainous tract through which it runs. [*Sic.*]

Mountains.—The whole of the tract is mountainous, caled by the inhabitants Nullamulla, the northern face being the ghauts runs in a N. E. 52° and S. W. 232° direction forming a strong natural barrier to the inhabited country consisting of the Amrabad district. A line of fortification is said to have enclosed it throughout its whole extent, which was built in the reign of Prutta Buddradoo, who was then the sovereign of this part. Some of the ruins are observable even to this day, particularly at the passes. The most conspicuous point that crowns the ghauts is Moonnanoor station, 1,494 feet above the level of the sea.

Description of the Table Lands.—The country above the ghauts is intersected by mountains rising one above another, their summits forming table lands with beautiful valleys at their bases and in every appearance very fertile; at present, with the exception of the Amrabad valley, the others are buried in forest and much neglected. [*Sic.*] The Amrabad station is 2,548 feet above the level of the sea. It forms an arm of the parent ghaut running directly east 20 miles, which may be taken as its greatest length, and from 1 to 7 miles in breadth, having 4 villages situated towards the eastern side, 2 mouzas populated, and 2 muzras now in ruins. The next and most remarkable one is the Kolem station, which is computed to be 2,873 feet above the level of the sea; this is a similar branch and is in every respect to be considered as the highest table ridge in the whole of this mountainous tract; its greatest length may be about 40 miles in a direct line east and west,—24 miles of which from the eastern extremity was only surveyed,—and from 2 to 5 miles in breadth; there are several muzra villages scattered over it, all of which are ruined and have hardly any cultivation; it only affords a scanty supply of dry grain for the subsistence of some hill people who thinly inhabit them.

The eastern portion of this tract bordering the Kistna may be considered another table land, but of lesser magnitude; it is intersected by other narrow table ridges running north and south, having four projections, almost at equal distances, in a direction of 60° and 240°, abruptly falling off on the north side, and gradually

sloping towards the south ; it is 15 miles in length and 13 miles in breadth ; the valleys are not deep, and many villages are scattered,—all thinly populated. Towards the north there are other tables, of no great extent but steep, presenting rather deep valleys well inhabited and connected with that of Amrabad.

The northern faces of all these table mountains are perfectly steep, they have almost all a precipitous wall, particularly at the ghauts, which may be from 250 to 300 feet high, close from the summits formed of a soft earthy substance foliated, and granite with a deep red tinge answering as an outward coat. The southern falls have none of the kind, nor are they so steep. The branches of the Kolem mountains break off into ridges running south to the river and forming deep valleys with gentle descents till to three-quarters of a mile near it, where they become very steep ; the walls already mentioned run along the foot of these hills, and are found in some places to form the banks of the Kistna. The mountains on the southern bank resemble in every particular the northern face of the ghauts already described. Their surface is undulating and excessively stony, chiefly of very red earth, and their southern declivities approaching the river into large slabs of slate stone.

Gungadavy is 1,721 feet above the level of the sea, and is a distinct table mountain ; Puggaloo, Kakalawarrum and Kumballapully villages are situated on it ; no vestige of anything can be discerned.

Of the hills below the ghauts the principal is Putehagutt, at the western extremity of the work, and a primary point of Colonel Lambton's ; it is 2,040 feet above the level of the sea, and is a detached hill, steep and woody. A ridge of lesser magnitude is close east of it. Nuddumpully, a small hill, is a secondary point. Those linking the ghauts and jutting out into brows are high. With the exception of some scattered low hills there are none deserving any account.

Climate.—The climate of that portion of country above the ghauts is very salubrious and healthy from about the 15th of February to June, when the rains set in ; the change, as well as the whole of that season, is injurious, owing to the moist surface, excess of cold, and obnoxious vapours proceeding from those mountains and forests ; fevers are then very prevalent and quite common. The country below suffers almost an insupportable heat of the sun.

Forests.—The whole of this tract is thickly covered with forest, but below the ghauts it is low thick jungle ; those trees that are useful are the yapa, teak, and nimulley, made into beams for buildings, &c. The muddee, murrey and nimulley are used for making coarse bandies. The bamboo answers all purposes, and is a useful reed. There are various other kinds of trees, plants and shrubs. It is also overgrown with the hill grass, which is an essential pasture for cattle. The kurreyapak is quite common.

Cattle.—Of these many are here reared for butter, which forms a principal commodity of export ; the cattle also are sold. They are of a good size and hardy but exceedingly wild. The buffaloes are few in number, sheep scarce, but below the ghauts asses, tattoos, pigs and fowls are seen in abundance.

Wild Animals.—Elks, boars, tigers, deer, bears, peacocks, partridges, &c., &c., inhabit the forest, and great quantities of aquatic birds of various descriptions, and fishes, are to be found in the tanks.

Population.—It may be said to possess 4,904 souls at the average rate of 3 heads to a house, which to a square mile gives about 5 persons. The most of this portion for nearly 500 square miles is very hilly, and in consequence only inhabited by 100 souls, when it will give that part chiefly inhabited, on the same data, about 12 persons to the square mile. The chief inhabitants and castes are the Hindoos, the others are not numerous.

Hill Tribe.—The mountains are inhabited by a sect of hill people called the Chensoowads ; their immigration into these parts is not known even to themselves ; they, however, give an ideal account of their origin, viz., " In the days of Ramen and Raounnen we were considered as gollawads or shepherds ; when the war happened between them we signalized ourselves in the use of the bow and arrow in the service of Ramen, who honoured us with the title of Chensoowaddoos, a distinction and dignity above our original caste, after which we separated ourselves

to inhabit these wilds." From this information I am of opinion they may have come from the southward.

Manners and Customs.—The Chensoowads differ but little from natives of the country, except that their manners are more rude, their minds uncultivated, and their appearance altogether wild. They live in very insignificant moveable huts made of the hill grass and teak leaves, and scattered over this gloomy tract; they transport themselves over this wild country, according to their convenience, as they are unaccustomed to one spot; their food consists chiefly of the yam, which they call chensoogudda, the bettoodta or red squirrel, partridges, peacocks, kundthy, elks, hogs, doopee, monkeys [?] of the lion-tailed, sheep, honey, and the kernels of various wild fruits. Fowls [?] wild and domesticated, snakes, tigers, bullocks, horses, monkeys and wild dogs are prohibited.

Language.—Their language is Gentoo, but articulated in such broad sounds and broken words as to render it difficult to be understood. They are perfectly expert in obtaining honey from the most dangerous and frightful precipices, which they barter for cloths with the Banians, who undo them completely in their exchanges. They are seen to keep perfect good health, and dread to leave their native forests. Tobacco is an essential article with them, and the juice of the date, which they quaff to some excess, makes them somewhat dangerous and unmanageable, they are in consequence frequently culpable in committing instant murder for the least of offences without the smallest fear. Though their persons promise nothing delicate, yet they are so very dexterous and nimble as to escape from the sight of any person in an instant. Their women and children are equally remarkable for the same.

Comparison and Dress.—From the waste grounds that are to be met with, it is evident that this part was more populous; at present their number may be estimated at about 100. Their dress consists of a piece of cloth about their waist and another on their head. The women have cloths as other natives, but no jackets; they expose their heads with the hair knotted on the very crown, short and shockingly dirty, which makes them appear very wild. The men invariably go about with bow and arrows, and some with matchlocks, which they use with great agility, seldom missing their aim.

Divisions.—They are divided into sets, portioning the mountains among them. They never interfere or encroach on each other's limits. For collecting the produce each set has a chief, who is called Naikadoo; he exercises the rites of marriage, quells disputes, &c., on all which occasions he is rewarded with a present of some dainties and coarse cloth. They have a number of wives and concubines according to their respective means; they marry at a grown age; the son becomes the heir. Their patrimony and wealth consists of a bow and arrow or a matchlock, an axe and a large knife. Their persons are middle-sized, dark and not corpulent, but cannot be said to possess beauty; they are not clean, have a good sight and are quick of hearing. They seize any opportunity that is afforded in being employed for hire to guard cultivated lands, hew timber, &c., &c., immediately at the foot and above the ghauts.

Religion.—Their religion is that of the Hindoos, which is well known as wholly absurd and superstitious. Previous to any undertaking of importance, such as a matrimonial concern or moving from the spot they once inhabited, or in the collection of the produce of the forests, &c., they first consult their divinities, who have no regular temples—stones and some romantic spots, distinguished by peculiar designations, where they on all those occasions assemble.

Priest and Funeral.—The priest is chosen by themselves in their own sect, who is in every instance to consult the Naikadoo in whatever he may undertake; he alone when dead is buried, the rest are burnt; they are in the habit of placing one rupee and a new piece of cloth at the head of the defunct.

Religious Temples and Buildings.—A pagoda romantically situated at the foot of a precipitous wall running along the ghauts, enclosed in a deep valley, with another at the base of the mountains close S. W. of the Moonanoor station, is worthy of attention, both for its superb structure, natural and artificial

perspective, and the inviolable sanctity prevalent with the natives. These are dedicated to Oomah and Boga Myeshwars; a yearly festival is kept up here, when a fair takes place and about a thousand assemble to pay their devotions. The feast is in Mukkra or Margacshrum Sankramanum, corresponding to the 13th of January 1823 and lasts ten days, three of which are the grandest. It receives a monthly allowance of 6½ rupees from the Circar, disbursed by the villages of Moonanoor and Rungapoorum; the road leading to it proceeds from the latter, below, to the former village, above the ghauts, built of stone steps from the foot to the summit; there are several fine preserved inscriptions on square stone pillars, excellent springs and a small flower garden, besides various other little buildings and compartments; parts of these are excavated out of the granite wall, above which huge masses of rocks emerge, and overhung by lofty trees give the whole a fanciful appearance.

A pagoda consecrated to the deity Gopalswamy at Moonanoor is of ancient date, built on a large scale, and receives a monthly allowance of 4 rupees for defraying the ceremonial rites from the village; some inscriptions are carved on stone, single solid granite pillars answering as stumbum, and others that served as gates formerly; the latter, now thrown down, are very remarkable.

There are two small pagodas at Amrabad, one dedicated to Ramaswamy and the other to Chenroyan; a limited festival takes place yearly, at the expense of the Zemindar and the inhabitants. Several others of diminutive structure are to be seen scattered, and deserve no mention.

Manufactures.—The manufactures are coarse cloths, toddy and eppapoo arrack, cumblies, oil and some small quantity of iron.

Trade, Exports and Imports.—These are principally carried on by the Bunnarries and Banians, chiefly in salt and grain. The imports are a vast quantity of salt from Bunder and eastward, cocoanut, supary, wheat, coarse cloths and gunpowder, &c., &c. Exports are grain, of which paddy forms their chief want. The hill productions are bamboo, timber, ghee, &c., to Devarkonda and Hyderabad.

Chief Towns, Villages and Market-places.—Amrabad, the kusba of the district, is a large village enclosed by a mud wall, and has a mud fort in which resides the Zemindar. It is chiefly inhabited by Hindoos of the Yellama caste and a proportion of Mussulmans; there are several bazar shops; it has a small annual fair, which is contributed by the inhabitants; many of the dwellings are now seen in ruins.

Atchumpett has a weekly market which takes place on Thursdays, and is chiefly inhabited by Kamatees, some Hindoos and Mussulmans. It is surrounded by a mud wall lately erected on the lands of the mouza villages of Wallapulla and Tungapoorum, which are at present ruined.

Nuddimpully is a pretty large village with a fort and high mud wall, where the Amildar has his cutcherry and resides in it; the inhabitants are mostly Hindoos.

Roongapoorum, once a famous town of the district, where all public accounts, &c., were kept, and the seat of the kutcheries, is now much neglected and mostly ruined; it is thinly inhabited by a few Hindoos and Mussulmans.

Moonanoor, the cusba of the putty, is rather a large village, and a place of great sanctity; a fabulous account is given by the inhabitants that no one can take an oath on any of the deities, and that not a mortal has to this day heard the chirp of a lizard.

Puddra is a well-populated village and situated in a fine valley. Marudgoo belongs to the four Deysmooks of the pergunna.

Oodemilla, almost in ruins, and Bollyguttpully, are in jaghir, the latter ruined.

Singawarrum and Ganagenpenta are in mukta to the Wonpurty Rajah.

Oomapoorum, Nizambad, Kodavettycul, Lutteepoor, Gollavanpully, Penvella, Siddapoor, Munnarpully and Gunnapoor are villages situated on the south bank of the Dindee river; they are well inhabited, chiefly by Hindoos. Bramunpully and several other villages are ruined.

Chundergoobtypatnum is said to have once been a flourishing city, and the residence of the Chundergoobty Rajah. The natives of this place give a very curious account of this prince. It appears that he was absent for a long time on

a circuit or excursion, and on his return home he found his daughter grown and exceedingly beautiful; he was ravished at her sight, and forgetting every tie of parental affection, by which he should have been guided in his words and actions towards her, he on the contrary marked her out as an object to satisfy his unnatural desires. She had too much penetration not to perceive the intentions of her father, with whom she in a dutiful manner remonstrated, but finding her endeavours to bring him to a sense of his conduct unavailing, she left his presence and vowed to quit his country and dominion. This measure induced him to follow her, and just as he was crossing the Kistna river after her he fell a victim to her imprecations (this spot was afterwards called Patutttagunga, which signifies "unfathomable"; the water just here is perfectly green, which is said to have turned so on account of the numerous emeralds he had about him), and the city subverted and sank in the bowels of the earth, with the whole of the multitude who inhabited it. Chundergoobty (the name of the girl) proceeded to put her resolution in force, but Mullacarjee, their household deity, took her to Purvatum under his protection, where, as a mark of his favour for her devout services, she was called Mullika Devy. The foregoing superstitious account is from information, but is declared to be found in the inscriptions and poorunums at the pagoda Streeshellem Purvatum; at present an irregular hedge is to be seen on the declivity of a low hill, a minor arm of the Kolem table; it is $5\frac{1}{2}$ miles in a direct line north of the above temple, and 14 miles south from Amrabad.

Tanks.—The tank at Billakull, situated south $2\frac{1}{2}$ miles from it, at the foot of the ghauts, is the principal one; its bank, high and broad, is built of blocks of granite, and extends from one hill to another called Russeelcherroo, and has a large supply of water throughout the year. Those at Chundapoor, Rungapoor, Letchmapoor, Nuddumpully, Moonanoor, Amrabad and Bomenpully are pretty large and keep water throughout the year; others are seen which deserve no minute account. There are also several kutchu wells.

Rivers.—The Kistna river, so sacred to the natives, here forms the natural S. E. boundary of the Nizam's dominions; it runs between high mountains, precipitating itself with much velocity where the hills contract; the banks are high, flanked by abrupt broken walls of precipice; its bed is both sandy and rocky, has a constant supply of water, fordable in parts, and of about 30 to 50 feet deep at others. It receives on its course of $41\frac{1}{4}$ miles several large nullas and streams, and is from 3 to 4 furlongs broad where the Dindee unites. In the rainy season it takes up a space of 5 furlongs, washing the foot of the hills, and flows with great rapidity. There are many alligators and fishes in it; the whole tract it pursues has a gloomy and awful aspect.

The Dindee, being the northern boundary common to Devurkonda, has been already described. A large nulla below the ghauts takes its rise at the foot of the mountains south of Billakull, fills the Russeelcherroo tank, from whence it pursues a north and N. E. direction in a parallel with the mountains, passing close by Billakull, Banall, Sontapully, Veeraishwarrum, Letchmapoor, Bollyguttupully, Nuddimpully, Bramunpully, Chundapoor, Jynool, and unites with the Dindee $3\frac{1}{2}$ miles N. E. of Singawarrum. Its banks in many parts are steep and rugged; it passes over a wild tract for about 29 miles to the above river, bed sandy and nearly 100 feet broad. It is capable of irrigating the lands in its course, but the ruinous state in which the villages are, and the present population being so scanty, it is much neglected, but there are still several dams seen across it made up of temporary materials, and it has a small supply of water, which dries in the hot season.

Manumbadda-vag, a large nulla, receives its birth at the Moonanoor hills, and proceeds through the rich valley of Amrabad in an almost east direction for 20 miles, passes close to Moonanoor, Amrabad and Letchmapoor, takes a sudden southerly turn through a wild tract for $12\frac{1}{2}$ miles, joins the Nootoo-vag, where it assumes the name of Munda-vag for $2\frac{1}{2}$ miles, and empties itself in the Kistna. This nulla has rather high banks, and is useful to the inhabitants in its course east, after which the banks become rugged and precipitous, and of no service whatever till to its junction with the Kistna, where it is about 150 feet broad.

The Nootoo-vag has its source 8 miles west of Kolem station, and proceeds in an easterly direction for 31 miles through a deep and broad valley passing by Kolem and Bundawan Chilka, joins the Manumbudda; its banks are both low and steep, the bed chiefly rocky; it has a constant supply of water, and is thickly lined with bamboo forest for its whole length; some paddy is reared at Bundawan Chilka by means of a dam across it.

Three other nullas take their rise at Ippullapully and Oodmealla, proceed directly south and join the Kistna.

Roads.—The whole of this portion is intersected by roads; those considered as trading roads are, more properly speaking, frequented for their directness; all of them are difficult and harassing for men and cattle, owing to the irregularity of its surface, being formed of unequal table hills perfectly stony; one entering the country at Domerlagoonday separates at the ferry there, following the banks of the Dindee to Devarkonda; the other ascends the Domerlagoonday ghaut, passes over Muddymuddagoo, Geniganpenta, and separates south close of Oodmealla, crosses the Manumbudda-vag at its bend to Letchamapoor, Amrabad, Machawarrum, descends the Jullapulla Coorva pass to Rungapoor, Atchamapett and Hyderabad frequented [?].

Another enters the country from Allotum, crosses the Kistna (here a ferry) south 3 miles of Chintagoodium to the village, and joins the road to Marudgoo.

That which separates from Marudgoo continues to Goodoor, a ruined village, thence crosses the Manumbudda-vag, ascends the Amrabad table to Oopanootla and Trimullapoor, and descends to Amrabad.

The whole of these roads are traversed by Bunjarees, whose traffic consists in salt and grain.

A couple of roads are directed to Purvatum, they separate at Atchamapett, one proceeds south to Sowtapully, Banall and Billakuli, and ascends the Nundel Coorva Ghaut, which is the best of the two. The other ascends the Tullapulla Coorva Ghaut to Moonanoor, thence south over the muzra villages of Kolem, Wuttyvailoopully, Surrazloopully, crosses the Kistna to Purvatum; this is very indifferent. They are frequented yearly by the votaries that proceed in multitudes to the shrine of Mullacarja, the celebrated deity of the temple. Admit of laden cattle and tattoos.

Ghaunts or Passes.—The principal are the Tullapulla Coorva, Domerlagoonday, and Chintagoodium; they have all gradual ascents very stony and of no great length; next is Nundulla Coorva, the Pudra Ghaut to Siddapoor, and the Ghunpoora Ghaut; one to Pudra, another to Chitty Coonta and Letchamapoor, both directed to Amrabad: these are steep and difficult but admit of laden bullocks. There are four other passes which can only be frequented by men, being foot-paths.

Droops and Forts.—With the exception of the ruined line of fortification, already treated of, running along the summit of the ghauts there are no others. Several of the villages have mud forts or guddies, some enclosed within a mud wall, others only a boorj, all of which are of no consequence.

Soil.—Red or what is termed by the inhabitants Tooa constitutes the chiefest soil, very favourable to the dry grain culture. Black loam is also to be seen, but not in abundance.

Productions.—The productions common to the country are Same, Tamedialloo, Sudjalloo, Pessaloo, Oolavalloo, Nool, Guddy Nool, Amdialoo, Bibburloo, Jonelloo of two kinds, Chennajalloo, Nookerloo, Korelloo, Yavalloo and Uludloo. The garden productions are chillies, tobacco, &c.

Hill Productions.—The products of the mountains and forests are honey, wax, Neemapundoo, Janapundoo, Yellajapundoo, Toonkypundoo, Yeddooroo, Hooppoo or bamboo salt, Sarapuppoo, Eppappoo, Chensoogudda, Judeegingulloo, Judeepullakaloo, Karakoyaloo, Kunduguddaloo, elks' hides and bears' and tigers' skins.

PANGULL CIRCAR.

A part of this, containing portions of the Juttapool and Gopalpett pergunnas, comprises an area of 316½ square miles, 29¼ of which is cultivated with paddy, 49¾ of dry grain, 237½ of hills and slopes covered with wood.

Villages.—The principal village of note and remark is Juttapool, the cusba of the pergunna, divided by a small river of that name having the petta on its north and the fort on the south bank. The former is somewhat regular, and chiefly inhabited by Banians, &c.; a market takes place on Monday. The fort, once a famous seat of the Zemindar, well built with granite and lime, is now uninhabited and somewhat neglected. It, however, has a lesser town to the west adjoining it, where the Koonbies and Banias reside.

Munchalcutta was once conspicuous for its grand and extensive Hindoo pagoda, situated on the bank of the Kistna, now in a poor state, and fast falling to ruins. The great road to Madras touches this and has an excellent ferry. Chinnamurroor is a pretty large village and the residence of a Ranee. Peddamurroor, Yellatoor, Kolloor, Kapanoor, Pontally, Kollapoor, Toomkoonta, Kullavakool, Narsiapully, Yennamunnabulla and Jasseapully are large villages and have guddies; Somesalla is a jaghir; the rest are small and thinly inhabited. A weekly market is held at Pontelly, Kollapoor and Toomkoonta; the two former are remarkable.

Tanks.—The largest tanks are at Singawuttum, Jasseapully, Masumnadrum, Toomkoonta, Pentelly, Narainpoor, Koondoor and Sookapully; these are said to retain water for six or eight months in the year, and supply large sheets of paddy.

Rivers.—The principal river is the Kistna, passing by Yellatoor, Koodilly, Koolloor, Konda, Pagtoor, Chellamellapad, Mooreyecondah, Munchalcutta, Yemkull, Veerapoor, Yellala to Mulleshwarrum, and Peddasungum, rushes between the high hills, proceeds north-easterly by Somesalla, Siddooswarrum, Anragerry, Margootty, Bollaram and Doorgum to longitude 78° 33' 50.4". The banks are in many places very steep, by 4 and 5½ furlongs broad, bed sandy and rocky, particularly from Peddasungum eastward.

The Jattapool nulla takes its rise among the hills near Ballygootta, Yeddoorlaconda and Sungoyapully; in its course it is fed by a number of tributary ones, and enters this portion of survey at Nagullapully, where it becomes pretty remarkable, and passes by the villages Chikkapully, Jairlapully, Toomkoonta, Koondoor, Gopalpoorum. Another of the same magnitude, taking its rise from Goodpully, Yennacherla, Bhanapoor, Khanapoor, enters the survey 1½ miles west of Kuddroogutt hill, passes by the villages Yennamanabutla, Narsingraopully, Ramapur, Chennumpully, and close south of Pentelly unites with the former 1 mile 2½ furlongs north of Jattapool, and passing between the petta and fort unites with the Kistna opposite Mooreyecondah.

The third or easternmost is no less; taking its rise from the ghauts on the east, and Sundoorbutla, Peddapully, Umbuttpully on the north, it enters this portion of survey close east of Yapulla, where it is met by the former one from Lingalla, close south of Royawarrum, thence winds along a wild tract by the east foot of Pangadygutt hill to Chintapully and Moghet, and empties itself in the Kistna river 2 miles south of the latter village. It has a rocky bed, steep banks, and does not long retain water.

Roads.—The only road is that from Hyderabad touching Pangull, Vullavaroyampully, Toomkoonta, Singawarrum and Gopalpoor, crosses the Jattapool river at the junction of the two branches north of the cusba, from whence it proceeds to Munchalcutta, and crosses the river to Mooreyecondah.

Hills.—From Jattapool eastward the hills may be considered as commencing, they raise themselves to mountains where the river enters it—that is, at the villages Mulleshwarrum and Peddasungum. The principal tops are the Yemkulloo, Molli-goondoo, Margootty and Dargumgutt stations. Those seen by Letchanapully are rather conspicuous swells covered with wood, those by Kopanoor, Jyarpully, Kolloor and Soolepoor are tables covered with wood.

Of the detached hills Yaitumecondah is the most remarkable; its aspect is of

a conical shape, and its summit is covered with a mass of rock; on its top is situated a small pagoda dedicated to the deity Ramaswamy, which is said to be of great sanctity and held in veneration by the Hindoos. Pangadygutt from its appearance is a detached mass of rock, and is the most conspicuous hill east of the ghants.

Droogs and Forts.—Pentally has a neat fort consisting of 18 bastions built of slate stones and mortar, and a ditch all round.

Byannagootta or Old Pangull is a low flat table of a triangular form, on whose summit was originally situated a fort, but from the scarcity of water it has been abandoned, and is now in ruins.

Produce.—The produce is chiefly of paddy and dry grain of various sorts; the former is sown in great plenty along the glens, and the latter on heights and red soil.

Manufactures are limited to coarse cloths.

A large quantity of iron ore is to be had about the hills close to Mulleshwarrum and Chintapully; it is reported that diamonds were found near the village of Margootty, in the Kurnool country.

NELGOONDA CIRCAR.

One hundred and thirty-two square miles of the Nelgoonda Circar occupy the north-eastern portion of the survey, and consist of part of the Havelly pergunna, 17 square miles of paddy lands, 38 of dry grain, 6 of hills, and 71 of slopes covered with low thick jungle.

Yeddavully, Kungull, Anuntawarrum, Dooppullapully, Mhadawarrum, Mylawarrum, Lingawuttum and Kunnegull are the principal villages that are in it, and chiefly inhabited by Hindoos; Kungull is the largest, with a mud fort or guddy, where the Deysmook resides. It has a remarkable tank which contains water throughout the year. Yeddavully has also a rather remarkable tank which waters an extensive sheet of paddy.

GEOGRAPHICAL MEMOIR OF THE CIRCAR OF PURRAINDA, OF THE SOUBAH OF AURUNGABAD, IN THE DOMINIONS OF HIS HIGHNESS THE NIZAM OF HYDERABAD.

1. *Its Situation, Extent and Boundaries.*—The Purrainda Circar is bounded on the north by the Bheer Circar, on the north-west by the Collectorate of Nugger and the Khaterabad Circar, on the south-west by that of Sholapoor, on the east by the Circar of Nuldroog, and on the north-east by that of Darroor or Futtalbad. Its figure is nearly that of a trapezoid, the base lying towards the north, the mean breadth from east to west 36 miles, the mean length from north to south 57 miles, and the superficial content 2,061 British miles the particulars relative to the latter are entered in the following table :—

	Cultivated Land.	Hills and Slopes.	Waste Land.	Total.
Total of the Panch Mahals	342	533	189½	585
Total of the Purrainda Circar remaining to the Nizam's Government	786	140½	549½	1,476
Total of the Circar...	1,128½	191	738½	2,061

2. *Divisions and their Boundaries.*—It is said formerly to have contained 19 pergunnas, the revenue of which amounted to about 14 laes of Hyderabad rupees, as stated in the following table :—

	Rs.		Rs.
1 Haveloo	3,44,908	10 Wassi	35,933
2 Ooportla... ..	16,203	11 Tairkhaid	1,810
3 Yeet	19,537	12 Taimbornah	25,886
4 Pangaon... ..	39,489	13 Rutunjun	16,614
5 Barsee	81,057	14 Saivurugaon	980
6 Pangay	3,663	15 Karty	18,212
7 Bosa	3,56,118	16 Kyokumbah	93,358
8 Bhoomb... ..	86,625	17 Mandwa	66,643
9 Motalee	1,64,866	18 Marudi... ..	25,371
		19 Wangy	33,680
Total...Rs.	11,06,466	Total...Rs.	3,18,517
			11,06,466
		Grand Total...Rs.	14,21,983

at which time the Beema formed the general boundary to the west, but at present it is greatly circumscribed, being confined by the Seenna, and comprises but 14 pergunnas, five of which—Barsee, Pangree, Agulgaon, Pangaon and Rutunjun—form an extensive insulated portion belonging to the collectorate of Sholapoor known by the name of the Panch Mahals, so that thus reduced it contains but 9 pergunnas, namely, Purrainda, Wassi, Yeet, Mandwa, Rati, Marudi, Mohall, Oondergaon and Bhoom, and 4 talooks, namely, Namuz, Tairkeddah, Saivurugaon, and Managam. Part of the Yeet pergunna and a number of villages are the jaghir property of Raja Row Rumbah and others. The remaining villages are in charge of the Ummeer Nawaz Khan, by whom the Circar is at present farmed, and to whom a few jaghir villages also belong. For further particulars see the general description of the boundary and Register of Villages.

3. *Capital, Cusbas, Droogs, Forts, Market-places and other considerable places.*—Purrainda, the capital of the Circar, situated on the left bank of the Seenna river in E. longitude 75° 30' 18" and N. latitude 18° 16' 20", bears from the Mecca mosque at Hyderabad N. 71° 5' 3.15" W. and is distant 209.31 miles. It was once a large and populous enclosed town, but at present is little more than a mass of ruins covering 9 square furlongs. The stone ghurry in the centre of

the town is a fine building about 200 yards square, and consists of a double rampart or faussebraye supported by small crenelled round towers well finished in the Mahratta style; the walls of the lower enclosure measure at least 36 feet from the bottom of the ditch to the line of fire, and those of the interior rampart rise about 20 feet above them; the whole is in good repair and surrounded by a deep broad moat which contains water throughout the year and is filled from the small tank on the east side. In addition on the south side there is a sort of dry ditch, and the whole perimeter is enclosed by a low glacis. The killedar has probably 200 men in his pay, and the revenue of a considerable number of villages is allowed for the repairs and preservation of the fort. The few Hindoo temples in the suburbs are in ruins, but there is a fine new durga on the N. W., at which an oorus takes place annually. The bazar contains about 50 shops, at which coarse cloths, kumbliies, the common articles of native apparel, and vegetables are sold. The surrounding lands are almost wholly lying waste, and with the village present one spectacle of wretchedness and ruin. A market is held on Sundays.

2. Wassi, the capital of a pergunna, situated in N. latitude $18^{\circ} 32' 28''$ and E. longitude $75^{\circ} 49' 49''$, is a small populous town encompassed by a mud wall having two gates, one facing the north, the other the west. It contains about 20 bazars and 500 houses, also a small peer, to which an annual oorus takes place, and is remarkable for its fine groves of mango trees and richly cultivated lands, which produce every description of dry grain, poppies, sugarcane and wheat, also a small quantity of rice. A market is held on Thursdays. Also a few coarse cloths and kumbliies are manufactured. A Zemindar, a Desmook and a Despondia reside here.

3. Yeet, the capital of the pergunna of the same name, contains about 400 houses and 42 excellent bazars, and is situated on the road from Sholapoor to Bheer, in the midst of extensive and flourishing cultivation, in N. latitude $18^{\circ} 37' 17''$ and E. longitude $75^{\circ} 39' 4''$; an excellent market is held on Sundays, and cloths of several qualities, coarse and fine, also kumbliies, and a great quantity of opium, are manufactured. It is the residence of two Amildars, one resident on the part of the Jaghirdar and the other on the part of Government.

4. Mandwa, a small enclosed village, at present containing about 150 houses, but said to have been a large village, which the ruins of a petta on the western side appear to indicate. It is the capital of the pergunna of the same name, and residence of the Desmook, and is situated in an extensive valley surrounded by richly cultivated lands and tops of mango trees, in N. latitude $18^{\circ} 31' 18''$ and E. longitude $75^{\circ} 56' 43''$.

5. Bloom, a small town covering about 12 square furlongs, situated 6 miles south-west of the ghauts in N. latitude $18^{\circ} 27' 35''$ and E. longitude $75^{\circ} 42' 18''$, and the capital of the pergunna of the same name, is at present held in jaghir by the Raja Rumbhaje Numbhokur, otherwise styled Raja Row Rumbah, a Moonsubdar of 7,000. It is situated on the principal route from Sholapoor northward to Poona, Bheer, and Aurungabad, &c., and is intersected by the Woolpy river, two branches of which uniting above the town pass through its centre and divide it into two equal parts, that on the west of the river is surrounded by a strong wall and is chiefly inhabited by the Row's followers, that on the east is the petta, and contains two fine pagodas dedicated to Shevagoobah and Kaiswary, 70 bazars, 50 weavers' houses—25 of the latter are the habitations of manufacturers of coarse punjum, and the rest of various parts of native apparel of excellent texture; there are also 6 weavers [?] and 2 dyers. This part of the town, however, is probably greatly injured, as in May 1835 a dispute and fight took place between the Pathans and Arabs in the Rajah's service, during which it was set on fire, and is said to have been consumed. Excellent sugar is also manufactured, the annual customs upon which amount to two lacs of Hyderabad rupees. It is, however, remarkable that the canes for the manufacture are not grown at Bloom, but brought from Yeet, Wassi and other places above the ghauts, the soil about Bloom being so unfavourable for their culture that those grown are wholly unfit for the manufacture of fine sugar, and are commonly sold or exchanged for others. A market is held on Sundays for vegetables, grain and common cloths, and another

on Thursdays for cattle, at which tattoos, bullocks, sheep, &c., are commonly brought and sold. The chief markets for the sugar are Poona, Hyderabad, Sholapoor and Jaulna. There is a pagoda on the west of the village, distant about three-quarters of a mile, dedicated to Khundoba, which is of some celebrity.

6. Barsee, a large trading town and capital of the Panch Mahal, situated 16 miles east of Purrainda, in N. latitude $18^{\circ} 14' 8''$ and E. longitude $75^{\circ} 43' 40''$, covers an extent of 32 square furlongs. The town is divided into two nearly equal parts by a nulla which runs south-easterly through its centre; that part on the south, inhabited by the Talookdar, contains some of the principal buildings, and is surrounded by a decayed mud wall; but the houses of the principal traders are situated within the eastern petta, which is also partly enclosed, and at the principal entrances strong gateways are erected. Three principal roads depart from the centre of the eastern petta to Poona, Sholapoor and Bhoom, &c.; these are lined with bazars, numbering about 400, plentifully supplied with the common commodities disposable among the inhabitants—vegetables, &c. The chief trade of the town is in cotton, which is brought from the interior by merchants resident at Barsee, and forwarded to Bombay, in return for which they receive salt, cocoanuts and spices; a market is held on Sundays for grain and vegetables, which is well supplied, and another on Saturdays for bullocks and tattoos. The great banian tree at an eedga on the west of the village has been used to determine its position. There are no buildings of importance, neither are there manufactures.

7. Wyrag, the chief town of the Pangaon pergunna, is situated on the highroad from Hyderabad to Bombay via Taljapoor Ghaut, on the right bank of a small nulla falling into the Nuggerry river, in N. latitude $18^{\circ} 3' 55''$ and E. longitude $75^{\circ} 57' 22''$. It is the second largest town of the Panch Mahal, covers 20 square furlongs and contains a large population, 1,500 houses and 200 shops. The town is enclosed by high mud walls supported by towers having a basement of stone, and has five grand gateways. The main street runs north and south, and is occupied entirely by the houses of its wealthy inhabitants, chiefly Banias and soucars. There are no manufactures, but an extensive trade is carried on, and consists in collecting the produce of the surrounding districts, chiefly grain, and forwarding it to Hyderabad and other distant stations; a great quantity of goor—that is, coarse sugar—is also sent to Bombay, where it is refined and returns in part to the district; cloths, chiefly articles of apparel, are also brought from Nagpoor for the same market; the return articles from Bombay are chiefly salt, cocoanuts and spices. A market is held on Wednesdays and Thursdays, at which cattle, cloths, cotton, goor, grain and other common articles are brought and sold; the bazar is also well supplied. At the N. gate without the walls stands a magnificent pagoda dedicated to Mullick Arjun, and there are two within the town dedicated to Mahadeo and Sunkunnahdeo, at which no festival is held, but devotees daily throng to them from all quarters. The tank near the pagoda on the north side has a fine bund of masonry, and contains a good supply of water throughout the year. The grand pagoda is the point by which the situation of the town has been determined.

8. Kari, a flourishing village surrounded by groves of mango and tamarind trees on the bank of a small nulla, in N. latitude $18^{\circ} 14' 33''$ and E. longitude $75^{\circ} 57' 47''$. There are several bazars and a small trade is carried on with Barsee. The market held at this village has been discontinued for some time.

9. Nanur, a large and populous village situated on the right bank of the Puttulgunja on the route from Poona to Mominabad and Hyderabad via Kurrudda, in N. latitude $18^{\circ} 35' 46''$ and E. longitude $75^{\circ} 21' 36''$. This village is at present the personal jaghir of the Ameer Nawazkhan Bahadur, contains 450 houses, 23 of which are those of weavers and braziers, also 25 shops, and a fine pagoda dedicated to Nandai, at which an annual festival is observed; a market is held on Sundays and Mondays, which is well attended. The principal articles exposed for sale are kumbliies, cloths, vegetables and fruits, &c.

10. Jowla, a large village on the right bank of the Puttulgunja near its junction with the Seena, contains about 400 houses, chiefly built of brick and stone,

also a fine pagoda very richly decorated. N. latitude $18^{\circ} 32' 35''$ and E. longitude $75^{\circ} 19' 9''$.

11. *Sailgaon*.—A village at which a market is held on Thursdays. It is situated on the right bank of the Kyree river in N. latitude $18^{\circ} 29' 23''$ and E. longitude $75^{\circ} 23' 47''$, and is of considerable size, covering 8 square furlongs, but generally a mass of ruins; a number of small roads cross at this village from Kurrudda, Kurmullee, Purrainda, Bhoom and Poona, and probably some small trade is carried on.

12. *Mannkessur*.—A large enclosed village on the right bank of the Bhoom, N. latitude $18^{\circ} 21' 20''$, E. longitude $75^{\circ} 41' 20''$. This was once a very populous and opulent town, but is now deserted and in decay. It is the enam of a Gosainy and contains about 12 shops and 500 houses. The lands attached are extensive and well situated but poorly cultivated.

13. *Pangaon*.—A large enclosed town of the Panch Mahal bearing $20\frac{1}{2}$ miles S. E. from Purrainda in N. latitude $18^{\circ} 8' 17''$ and E. longitude $75^{\circ} 47' 7''$. This town covers nine square furlongs, and contains 600 houses and six shops. In the centre of the town is a very high square mud ghurry, and at the entrances on the north and south large gateways; also on the south side without the walls a fine new teppookolum lined with stone, of about 100 yards superficial content. Brahmins form a considerable part of the population, and within the village are four small pagodas dedicated to Punkeshwar, Nageshwar, Mahadeo and Gopalkrist: there are two others, one immediately without the town on the N. E., the other distant about one mile in the same direction: these are dedicated to Khundoba and Bhyroba. A Desmook and two Despondiahs reside at Pangaon. Also a few coarse cloths and cumlies are manufactured.

14. *Pangree*.—A large and populous village on the highroad from Sholapoor to Bheer by Wyrag, Yairmullah and Mondwah in north latitude $18^{\circ} 17' 49''$ and E. longitude $75^{\circ} 55' 9''$. The west pettah is nearly deserted, but the east is still populous and contains about 400 houses and 40 bazars. The pettahs are enclosed by rough walls and separated by two small nullahs. On the east side is a fine avenue of mango trees extending from the village to a pagoda distant about one mile. The manufactures are a few coarse cloths and kumlies, which are taken to Barsee for sale, there being no market held at Pangree.

15. *Kullumwady*.—A strongly walled village of several enclosures, having a very high tower in its centre, N. latitude $18^{\circ} 22' 40''$, E. longitude $75^{\circ} 48' 2''$. It is at present in jagheer, and is chiefly remarkable for a fine date tope, which, in consequence of there being few in the district, is of considerable value.

16. *Pimpulgaon*.—A large enclosed village on the right bank of the Nunny river and on the trading road from Sholapoor to Bhoom. Its inhabitants are chiefly engaged in cultivation, but it has a well-supplied bazar containing about 60 shops. N. latitude $18^{\circ} 18' 56''$ and E. longitude $75^{\circ} 42' 49''$.

The following are market villages, and those which are the next most considerable places, but consisting generally of not more than 150 houses, and being by no means remarkable, it has been thought sufficient to give their geographical position with a column of short remarks:—

	N. Lat.	E. Long.	
Sakut	$18^{\circ} 7' 51''$	$75^{\circ} 50' 2''$	On the right bank of the Suranuddy. Contains 300 houses, and a mosque dedicated to Meer Sakut, to which an annual pilgrimage takes place.
Rutanjun	$18^{\circ} 3' 36''$	$75^{\circ} 55' 8''$	The cusbah of a pergunna, situated on elevated ground and surrounded by strong stone walls; is at present almost desolate, contains three bazars or shops, three looms for cloths and one for kumlies, and is the residence of a Zemindar, also a Zilladar.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

	N. Lat.	E. Long.	
Damungaon	18° 0' 2"	75° 53' 26"	A large and populous village, at which are four pagodas having high pyramids : they are erected to the memory of Bodhala Bava, a Gosainy saint, and a ceremony is annually performed for five days ; also a festival is held which lasts ten days.
Oopully	18° 12' 54"	75° 39' 36"	A populous village, at which a market is held on Fridays.
Wakadie	18° 16' 6"	75° 36' 54"	A populous village on the south bank of the Chennie river on the road from Barsee to Purrainda. (Pag.)
Ingungaon	18° 15' 34"	75° 40' 9"	Situated at the junction of the Chennie and Nunny rivers, is remarkable for a large pagoda $\frac{3}{4}$ of a mile N. E. of the village, dedicated to Bhavancee. (Pag.)
Tandulwady	18° 6' 40"	75° 36' 10"	On the road from Poonah to Mominabad, contains about 150 houses.
Doodee	18° 15' 55"	75° 32' 59"	A small village on the left bank of the Doodnah river, containing about 150 houses.
Indapoor	18° 30' 3"	75° 51' 54"	Contains about 100 houses, two bazars and a few weavers' houses.
Sapani	18° 24' 39"	75° 58' 40"	On the right bank of the Thairna river, contains about 200 houses.
Itkoor	18° 33' 54"	75° 57' 38"	On the road from Poonah to Mominabad, is strongly walled and contains about 200 houses. There is an Anamauth on the south of the village, which is a fine building of its kind. The station of the name is situated on the hillock about two miles east of the village.
Yairmulla	18° 23' 28"	75° 55' 26"	Contains 200 houses. The hill pagoda $1\frac{3}{4}$ miles W. of Chorakullee station, consecrated to Yedai Devi, to which a jattrā takes place twice a year, belongs to this village.
Chorakullee	18° 21' 26"	75° 58' 50"	A considerable village east of the station of the name, at which a small market is held.
Pangaon	18° 25' 48"	75° 56' 25"	A large village above the ghats, consisting of about 350 huts and having a neat ghurry.
Agulgaon	18° 19' 3"	75° 47' 36"	A small village in the Panch Mahal, situated on the Nunny river, and capital of the talook of the name. A few kumlies are manufactured, but the village is in a ruined condition.
Davulhully	18° 21' 37"	75° 44' 22"	Once a large and populous village but falling to decay. One-half mile to the south of the village is a good pagoda dedicated to Khundoba, which is the point by which the position of the village is determined.
Marudi	17° 48' 15"	75° 57' 00"	A kusbah, at which a market is held on Mondays, and at which are three shops, but being in the vicinity of Sholapoor is very thinly attended. The village is surrounded by mango trees and has several fine wells, but is in a general state of decay.

HYDERABAD AFFAIRS.

	N. Lat.	E. Long.	
Kati	17° 57' 42"	75° 56' 16"	The kusbah of a pergunnah, at which a market is held on Saturdays. It contains eight bazars and is remarkable for a very neat musjid and several fine wells lined with stone. It is the residence of a Naib.
Nanuz or Nandanauz	17° 50' 18"	75° 54' 00"	A large enclosed village on the road from Sholapoor to Barsee and Bheer, at which a market is held on Mondays and is numerously attended. This village contains but two shops, and is chiefly remarkable for its extensive cultivation, particularly of sugar-cane.
Nurkhaid	17° 54' 11"	75° 43' 30"	A large enclosed village belonging to the collectorate of Sholapoor, on the right bank of the Bagawutty near its junction with the Seena. It is surrounded by a mud wall, contains a small ghurry, 400 houses, 10 bazars and a small pagoda. It is in rather a flourishing condition, and a market is held on Monday.
Jowlah	18° 20' 5"	75° 38' 2"	A populous village on the left bank of the Chennie river and on a small road from Purrainda to Mankessur, having a durgah and pagoda. It contains 500 houses and 10 shops. (Pag.)
Nolgaon	.....	75° 34' 19"	A small village on the left bank of the Seena, at which an annual festival is observed in memory of Girghee Peer.
Sirson	18° 17' 30"	75° 39' 14"	A large and populous village on the bank of the Chennie river, containing 200 houses and three shops.
Thairkedda	18° 26' 48"	75° 53' 12"	A small walled village at the source of the Thairna river, and from which the latter takes its name. It is at present in jagheer, and contains about 500 houses and 20 bazars. A market is held on Thursdays and Wednesdays.
Wuddaul	17° 52' 38"	75° 52' 52"	A large walled village belonging to the collectorate of Sholapoor. It contains about 200 houses and three bazars. A market is held on Sundays, which is but poorly attended.

4. *Towns and Villages.*—For the actual position of every village and town see the Register of Villages.

5. *Rivers and Anicuts on them, and Canals.*—The most considerable river is the Seena, which comes upon the boundary of the Circar at a point S. E. of Multan in N. latitude 18° 36' 15" and E. longitude 75° 13' 35", where its breadth is 150 yards, its banks 30 feet high, its bed rocky and sandy, and it contains 3 feet of water in the dryest season. From the point mentioned the river winds south-easterly 9½ miles to where the Puttulunga falls into a small stream which enters the Circar near Nanuz and comes down by Jowlah. Thence the Seena runs south-easterly 5½ miles, and the Koraly river disembogues on its right bank at Sungoobah pagoda, N. latitude 18° 25' 48", E. longitude 75° 18' 11", and thence assuming a very winding south-easterly course 7 miles passes Bonagoor, Dulnoor, Alloosoor and other small villages on its left bank to the junction of the Khyree river, N. latitude 18° 22' 47", E. longitude 75° 23' 36". This small river rises near Kurrudda and enters the Circar three-quarter mile S. E. of Dhunnygaon, on its left bank, whence it flows to Deokur Chennoor, 2

miles, and is met by a considerable stream from the north, thence it passes close east of Jowlah, and assumes a very serpentine yet general direct south course to the point before mentioned. The Seena from the junction of the Khyree runs south-easterly 3 miles to the junction of the Nullee river, N. latitude $18^{\circ} 21'$, E. longitude $75^{\circ} 25' 30''$, which rises at the foot of the ghauts below Jotiwaddy station, and thence takes a serpentine south-westerly course to the Seena; the principal villages on its banks are Intruz, Deogaon, Gunda, Cheespoor and Waspul. From the junction last mentioned the Seena continues its course to Dhomergaon, where a small stream joins from the N. E., and it assumes a very winding south-easterly course to the junction of one of its grand branches, called Woolpa. This river is composed of several branch rivers, one rises at the base of the ghauts below Yeet, where a number of branches forming themselves into two principal streams meet, and at Torlasangovay are called the Doodna river. From Torlasangovay the stream takes a general direct but serpentine southerly course, and passes by Samungaon, Sakut, Oondaree and Ummurga, $12\frac{1}{4}$ miles, to the main branch of the river, which probably retains the name of Woolpa throughout its whole course. Its principal source is at a point three miles west of Wassi, whence it flows westerly to Bhoom, $9\frac{1}{4}$ miles, $3\frac{1}{2}$ miles west of which a large nullah falls in from the north, and $1\frac{1}{2}$ miles further on it joins a grand branch from the north, which rises 1 mile S. W. of Hijoora, about 8 miles east of Yeet. From its course it flows west, $5\frac{3}{4}$ miles, to Bohenwaddy, and thence southerly $8\frac{1}{2}$ miles to the junction mentioned at Sangavay, passing on its course Sookhla, Hoolloop, Rugergaon, and other small villages. From the junction last mentioned to that of the Doodna is $12\frac{3}{4}$ miles, and Rosumba, Balagaon, Untergaon and Takalee are the principal villages by which it passes. From the junction of the Woolpa and Doodna the river continues its course half a mile to Deygoor and Wadnoor, where it is met by the Nunny river. The principal source of the river is at Yairmulla, below the ghauts, on its west, where a number of small streams uniting flow to Agulgaon and are there met by a large nullah coming down from Kaleygaon, they thence flow south-westerly to Pimpulgaon, 3 miles, and are met at the distance of six miles, and half a mile west of Injungoor, by the Chennie. This river is formed of two small rivers, the Yeeroopa and the Lendoora. The Yeeroopa rises at the south base of the Dolunja ghaut, at Kunnara station, and comes down by Wungerwaddy and Aarsal. It is met three miles south of Maunkessur by the Lendoora, which rises at Nandgaon and Kurjee. At two miles east of Kongoon it is formed into a large tank, a bund being thrown across a deep ravine, whence the waters flow direct by Kudkooni and Davulhully to the junction before mentioned.

After the junction of the Nunny and Chennie—the river probably retains the name of Nunny—it passes by Wakada to Dytnah, on the right bank, four miles, where a large nullah falls in, coming straight from Ashto and Jowlah, and thence runs south-westerly $3\frac{3}{4}$ miles, and turns west $2\frac{1}{2}$ miles to its junction with the Woolpa, as before mentioned. From this junction the Woolpa takes a very winding course four miles by Avorpeepurry and falls into the Seena $\frac{1}{2}$ mile N. W. of Kuplapoorry, N. latitude $18^{\circ} 12' 18''$, E. longitude $75^{\circ} 29' 25''$.

From Kuplapoorry the Seena takes a very winding course and passes Soarra, Nalgoor, and many small villages to Tandulwaddy, 14 miles, where the Uddu joins, N. latitude $18^{\circ} 6' 19''$, E. longitude $75^{\circ} 36''$. This is a small river which rises near Oopully, about 8 miles N. E. From the junction of the Uddu the Seena takes a winding course to Darphul, $4\frac{1}{2}$ miles, opposite to which the Goorada falls in, which rises at Kussulhimb, but is principally formed by the junction of a number of small streams from about Baree. The principal stream runs from Toondra to Gasiwaddy and Pimpuree and thence to the Seena, N. latitude $18^{\circ} 3' 20''$, E. longitude $75^{\circ} 38' 26''$. From Darphul the Seena winds to Wakada, where a considerable nullah joins, which comes direct from the height near Pangaon, on which is the station. From the last-mentioned point the Seena continues its winding course to the junction of the Bhagawatty. This is a large stream—several miles before its junction it is as broad as the Seena and measures about $1\frac{1}{2}$ furlongs. Its principal sources are at one mile east of Chorakullee, above the ghauts, at Mulkapoor, also above the ghauts, and about the base of the ghauts south of Yairmulla. From Chorakullee it flows

westerly to Ookudgaon, $4\frac{1}{2}$ miles, and is met by the branch from Mulkapoor; it thence flows westerly $3\frac{1}{2}$ miles, and is met one mile west of Surat by the waters from Yairnulla coming down by Pimpulwaddy. It thence flows W. $\frac{1}{2}$ mile to Patree and takes a southerly course, passing by Garrey and Pimpulgaon to the junction of the Nilkutnuddy, $6\frac{3}{4}$ miles, situated $\frac{3}{4}$ mile south of Kamgaon. This nullah rises above the ghauts E. of Wuddagaon and flows direct S. W. to Pangree, $\frac{1}{2}$ mile S. W. from which it is met by another branch, which rises $\frac{1}{4}$ mile south of Wuddagaon, the same village, but which comes down a gully $1\frac{1}{2}$ miles to the south of the former branch. From the junction at Pangree the stream runs south-westerly five miles and is met by another large nullah from the ghauts, which passes by Gooroomulla, and three furlongs thence meets the branch before mentioned from Pangree, Yairnulla and Chorakullee.

At this point it is about sixty yards wide, and takes the name of Suranuddy; winding southerly $8\frac{1}{2}$ miles, it is met one mile south of Sakut by a grand branch from the east. This is the branch properly called Bhagawutty, but it is more commonly known by the name of Jerragaon nullah. It rises near Daraseo, and at Jerragaon forms the boundary of the Circar. From Jerragaon it flows westerly by Oopully, and at the distance of five miles is met by a large nullah from the north called Ramnuddy, which rises above the ghauts at Bhanusgaon, and comes down by Kari, Norri and Pinpri; thence it takes the name of Bhagawutty and continues its course by Himgany to the junction before mentioned of the Suranuddy, N. latitude $18^{\circ} 6' 50''$, E. longitude $75^{\circ} 50' 1''$. From the junction at Sakut the Bhagawutty winds southerly by Karagaon, Oondergaon, and Yevully to Wallooz, 12 miles, and is met by the Nagajerly, a large stream, the principal source is below the ghauts near Toljapoor, but winding westward by Mirjaiepoor to Sasoor it is met on its course by five small streams from the south, and first becomes a considerable stream, being in breadth about sixty yards. From Sasoor it winds westerly $6\frac{1}{2}$ miles by Dytna and Moongohi to the point of junction at Walooz. From Walooz the Bhagawutty winds easterly by Deygaon to Goorpuddy, three miles, where the Kateera, a large nullah, dis-embogues. This nullah rises $2\frac{1}{2}$ miles east of Dhywaddy, and flows from Dhywaddy by Kati and Shailgaon to Kattulli, $10\frac{1}{4}$ miles, which are on its right bank, and thence to the Bhagawutty, six miles, which afterwards winds by Nurkhaid to its junction with the Seena, $5\frac{1}{4}$ miles, N. lat. $17^{\circ} 52' 20''$, E. long. $75^{\circ} 42' 32''$. From the junction of the Bhagawutty the Seena continues its winding course for about six miles and is met by a small nullah called Wunjeera, which rises at a point directly $2\frac{3}{4}$ miles west of Sawurugaon station and takes a south-westerly course six miles, passes $1\frac{1}{2}$ north of Wuddaul and close by Izzoor, three miles, to the Seena, $8\frac{1}{4}$ miles; at this junction, which is $\frac{3}{4}$ of a mile west of Sirrapoor, in N. latitude $17^{\circ} 48' 15''$ and E. long. $75^{\circ} 42' 56''$, the Seena finally leaves the Purrainda Circar and continues an extremely winding course to Lambootee, Poply, and Erwaddy to Pakny, $3\frac{1}{4}$ miles, south of which a large nullah falls which rises at Hutkerwaddy, two miles south-east of Nandanauz and passes south by Darphul five miles and thence to the Seena $5\frac{1}{4}$ miles. From the point last mentioned the Seena continues its course to a nullah on the left bank $1\frac{1}{8}$ miles south of Sevany, where the survey terminates, N. latitude $17^{\circ} 41' 3''$, E. longitude $75^{\circ} 49' 25''$. The breadth of the river at this point is about 250 yards.

The Uddera river, a branch of the Seena, rises at the base of the ghauts three miles N. E. of Molumbra, and takes a south-westerly course, being met by numerous feeders from the south on its course from Sungavi and Sooratgaon to Tumballa-waddy, 7 miles, where it is met by a large nullah coming straight from Deokoortee by Pimpla Boorz, and turns west for two miles and then takes a southerly course by Wansal to Marudi, $3\frac{1}{2}$ miles, where it is met by a large nullah from the north which rises at the south base of Sawurugaon hill station and passes by Sawurugaon and Wuddagaon. Thence the river flows southerly by Bangoor to Ugganoorwaddy, $4\frac{3}{4}$ miles, and is met by a large nullah which rises near Dotnee, and is met at Kassagaon, five miles, by a branch coming from two sources to the N. E., whence it takes a southerly course to the junction mentioned, $5\frac{1}{4}$ miles. The river thence continues its course southerly by Hippurga to Bala, where a nullah from the north, which rises south of Marudi station and comes down straight by

Karumbah, joins, and where the survey terminates, N. latitude $17^{\circ} 41' 57''$, E. longitude $75^{\circ} 55' 45''$.

The Seena passes through a deep alluvial soil lying upon soft limestone. The banks throughout its course are from 30 to 40 feet high and of dark-coloured earth. Its bed is sandy and occasionally rocky, its stream swift, and in the dry season it generally contains six feet of water, forming at intervals deep ponds. The whole of the rivers falling into it, and their numerous feeders, are of the same kind, and to the very source contain running water throughout the year. The Seena probably does not contain a great quantity of fish, but the smaller rivers are well supplied, so that it is not difficult to catch with nets considerable quantities : they are chiefly kubboose, eels, and a fine species of dace from 6 to 8 inches in length, &c., &c.

There are no anicuts on the river, and it is seldom indeed that attempts have been made on any of the smaller streams to construct them for the irrigation of the adjacent lands, and there is not at present one in repair ; those occasionally used are of earth and of a temporary kind, being washed away when the freshes come down.

The only bund thrown across a stream to form a tank is at Korigaon.

6. *Lakes, Tanks and Reservoirs.*—The largest tank is that at Korigaon, formed by throwing a bund across a small stream. It is very inconsiderable, covering but eight square furlongs, but contains water throughout the year. The next most considerable is at Wassi, which is merely intended to supply the town with water. Traces of former tanks—that is, broken bunds—are to be seen : at Barsee, at two miles north of Pangree, three small bunds at Purrainda, and one at Davulhully.

7. *Mountains and Hills.*—The whole southern surface of the Circar is composed of undulating grounds, which about Pangoor, Rutunjun, Sailgaon, Managaon, and S. E. of Kussergaon form small heights elevated about 300 feet above the surrounding plain, and which have very broken and rugged boundaries. A ghaut or descent from the high country traverses the northern extremity of the Circar, running south-westerly. It is the continuation of the range passing through the Nuldroog Circar and is composed of limestone. And here it is necessary to correct a mistake in the memoir of that Circar, as it is said to be composed of laterite, but that particular stratum does not extend beyond Nuldroog. The highest points are Gud Deruddurree, Chorakullee, Jotiwaddy and Sawuttuddoo, on which are trigonometrical stations. They mark the exact direction of the descent, and are probably situated 600 feet above the plain. To the south and west their heights above the level of the sea are not known.

The ground above the ghauts consists wholly of broad swells. The slopes of the ghauts are for the most part very steep and rugged ; also the under-features are very varied, and occasionally extend five and six miles, forming long rugged tongues and deep ravines, in which the numerous feeders of the Seena take their rise. The paths by which the ghauts may be ascended are numerous ; the best are those described. See the description of roads in the Purrainda and Bheer Circars.

These ghauts have no name but are generally called after an adjacent village : thus at Bhoom they are called Bhoom ghaut, at Toljapoor Toljapoor ghaut, at Kurrudda Kurrudda ghaut.

8. *Forest, Jungles and Woods.*—The surface of the Circar is perfectly clear, and the hills and waste grounds yield a plentiful supply of fine grass for cattle, but save in the vicinity of villages there is not a bush to be seen. The topes principally consist of mango trees and are occasionally numerous, as at Yeet, Wassi, Thairkedda and Mondwa. The wood used for the manufacture of implements of husbandry is the babool, but it is so extremely scarce that a small tree is valuable property. There is a date tope at Kullumwaddy and at a few other places about the bottom of the ghauts.

9. *Agrarums of Brahmins, and Polliams and Jagheers.*—On this subject Government does not permit inquiry.

There are, however, probably few establishments of religious sects, but

endowments and grants of various kinds are very numerous. For the jagheer villages see the Register of Villages.

10. *Cattle and Animals*.—The cattle are of the common kind and size. They are not particularly numerous. The same may be said of sheep, goats, and poultry, but in parts they are extremely scarce. Antelope are very numerous; and there is a considerable quantity of wild hog. Hares, partridges and peafowl, rock pigeon, &c., are plentiful. The quantity of common blue pigeon is very remarkable. Tigers, bears, &c., are unknown.

11. *Remarkable Buildings*.—A beautiful carved mosque of slate-coloured stone at Kati, having a dome and three fine teppoo kolums attached; a fine teppoo kolum at Deygaon; Bohera spire pagoda; a large pagoda at Wyrag; the fort at Purrainda; a pagoda at Sonarag; a spire pagoda at Domegaon, on the Seena; a spire at Kudkulgaon; Ashta Hill pagoda; a celebrated pagoda at Jotewaddy, not a remarkable building; a pagoda between Pangeor and Kullinwaddy; a remarkable pagoda at Dhamungaon.

12. *Mines, Minerals and Manufactures*.—Mines and minerals none. The manufactures are coarse cloths, kumlies, jagry, and arrack; also a few cloths of a fair description and good brown sugar made at Bhoom.

13. *Roads, Passes and Defiles*.—The roads in this Circar are mere bullock-paths used by the villagers in passing from one village to another. On the plains they are good, and country carts might traverse the country by them in all directions; but ascending the ghauts and about the rivers they are extremely bad. Carts are not used in the Circar and there are no roads for them: all merchandize is transported on bullocks. For further particulars see the description of roads in the Purrainda and Bheer Circars.

14. *Soil, Productions and Mode of Husbandry*.—The soil is a dark alluvial and lies upon soft limestone. Soda is said to be occasionally found in some of the nullahs after the water has dried up, and in the Urpah river; also fullers' earth in the nullah near Sholapoor passing by Wadjee, Wurtagaon, and Hippurga; and good chalk is procurable between Barsee and Purrainda. The information, however, obtained upon this subject is very imperfect.

The productions are dry grains of varieties, jowary being that most commonly cultivated, wheat, a small quantity of rice during the rainy season, also sugarcane and a variety of garden productions, pepper, poppus, (Mongphul) a sort of ground-nut and quantities of melons, which are cultivated in the beds of the rivers in the dry season. The mode of husbandry is that commonly practised by the Mahrattas and in other parts of the Nizam's dominions.

AREA.	Cultivat- ed Lands.	Hills & Slopes.	Waste Lands.	Total.
Panch Mahal, not including insulated villages	336	52½	184½	573
Insulated villages of the Nuldroog Circar in do.	3	1	2½	6½
Insulated villages of the Purrainda Circar in do.	3	.....	2½	5½
Total Panch Mahal...	342	53½	189½	585
Purrainda Circar, not including insulated villages	780½	140½	547½	1,468
Insulated villages of the Sholapoor District in do.	6	.....	2	8
Total of the Purrainda Circar, not including the Panch Mahal	786½	140½	549½	1,476
Total Panch Mahal...	342	53½	189½	585
Grand Total, Purrainda Circar,...	1,128½	194	738½	2,061

(Signed) J. S. DuVERNET,
Lieut., and Surveyor superintending Hyd. Survey.

REPORT ON THE WURDA VALLEY COAL FIELD, RAJUR AND SASTI, BY MR. E. G. LYNN, B.C.E.

This portion of the Wurda Valley coal field is situated on the eastern escarpment of the anticlinal that divides it from its western extension into the Berars, and comprises the three small inliers of Paoni, Sasti, and Doptala.

The coal-bearing rocks extend from the Wurda river on the north to the limit of the series near Ahari, Borka, and Kurmana to the south, while the western boundary is traced by the same limits passing round the Kadoli. These rocks continue to extend to the south-east and south with occasional interruptions along the valley of the Wurda, but actual explorations have only been made as far as Rajur, over an area exceeding fifty square miles.

The village of Rajur lies to the north of H.H. the Nizam's dominions in $19^{\circ} 80'$ north latitude and $79^{\circ} 40'$ east longitude. The country is moderately elevated, but flat and cut up by numerous ravines, while the drainage is effected by the Wurda and its tributaries to the south. During the rains this tract is converted into one vast sheet of water, studded with a few light ridges of Baraka rocks, and the little hillocks on which the villages are built. The soil is fertile, composed of alluvial matter; but the country is very unhealthy during the cold season. The heavy jungles commence from three to four miles south of the river, and the view of the Wurda fringed with richly cultivated banks, and a well-wooded country blending in with the hills to the south, presents a scene that may be termed picturesque.

The general geology consists of the Talchirs to the south and west, and the Damuda rocks in and around Rajur. These upper series have been deposited over a very irregular surface, and consequently the basins of coal are disconnected.

The coal is found among the Upper Barakas, and its actual presence in the form of an outcrop was first known in 1839. Various opinions were then formed as to its inferior quality, and it was only during the last few years that it was positively declared to be good coal. Upon this information boring operations were undertaken on the 19th May 1871, and from that date till the works were closed, in the beginning of 1874, upwards of fifty boreholes were put down, which succeeded in defining the limits of three small inliers of coal at Sasti, Pooni, and Doptala. These borings were all very shallow, and in no case did they exceed 250 feet. The disconnected nature of the basins, and the heavy deposits of alluvium that prevented any good sections from being seen, might to some extent account for the large number of boreholes, yet the barren results from most of them must be considered exceptional.

The Sasti basin is bounded on the south and west by the Lower Baraka rocks, and on the east by a ridge that is supposed to be a fault. The area thus defined with the Wurda river to the north does not exceed 360,864 acres, and has been tested by eight boreholes. The average thickness of coal shale, &c., is about 20 feet.

Total amount of coal, &c., at 1,000 tons per acre	7,217,280 tons.
Amount serviceable, taken at $\frac{2}{3}$ of the above	4,811,520 tons.
Amount actually available, taken at $\frac{1}{3}$ of the latter	3,207,680 tons.

The Doptala field lies immediately to the south of the Sasti basin, from which it is separated by the supposed ridge fault that extends from the right bank of the Sasti nullah near its confluence with the Wurda to No. 27 borehole, and thence to the south of Sasti, joining on to the Sasti Baraka rocks. The coal at Doptala has been tested by twelve boreholes, but the seam is very thin, and this, together with the inferior quality of the fuel, renders it very doubtful whether there will be any practical advantage in working the field. The average thickness of coal, shale, &c., is about equal to $3\frac{1}{2}$ feet.

Total area of Doptala basin	1,673,686 acres.
Total amount of coal, &c.	5,578,953 tons.
Assuming $\frac{1}{3}$ as serviceable	2,789,476 tons.
Assuming $\frac{1}{3}$ of the latter as actually available	1,394,738 tons.

The Paoni basin lies three miles to the west of Sasti, and is separated from it by the Sasti Baraka rocks that bound it on the east, while a similar fault near Paoni forms its western boundary. The country to the north between Nos. 37 and 43

boreholes appears to be faulted by the Talchir series, which probably extends from near the Sasti to the Paoni Barakas; but this is only assumed from the sections met with in No. 43 borehole, as the country is covered with a heavy deposit of alluvium. The coal in this field has been determined by eight boreholes, giving an average thickness of 26 feet—

The area of Paoni fields	142,118 acres.
Total amount of coal, &c.	3,695,068 tons.
Amount serviceable, taken at $\frac{2}{3}$ of the former	2,463,379 tons.
Amount actually available, at $\frac{2}{3}$ of the latter.....	<u>1,642,252 tons.</u>

It will be seen that the deductions allowed are very heavy in the Paoni basin at least. I believe a larger amount is available than estimated for, but it is safer to err on this side than raise expectations that might never be realized.

To sum up the whole—

The total amount of coal at Sasti, Paoni and Doptala	16,491,301 tons.
The total amount serviceable	10,064,375 tons.
The total amount available	<u>6,244,270 tons.</u>

While on the subject of borings, as indicating the extent and quantity of coal, it might be useful to record the opinions of such employes as believed that the full knowledge of this amount had not been arrived at, and suggesting that more boreholes are necessary to test some likely localities where there is a probability of meeting with more coal. In this manner Mr. Taylor, the Coal Viewer, reports that there is every prospect of discovering a clear field to the S. W. and S. of Doptala near the deserted village of Matra, and that a very large area of coal-bearing rocks remains unexplored in the southern portion of this coal field. Similarly Mr. Pearson believes that coal will be found to the N. W. and N. of Matra, and suggests a borehole 1,500 feet N. N. W. of Matra, remarking that if coal be struck it may be found to extend to the Doptala basin, to prove which the country should be further tested to the W. and W. S. W. of this borehole. Again, touching the Paoni field, Mr. Pearson recommends a borehole 2,700 feet S. E. of No. 37, where he is strongly of opinion the coal will take a northerly direction for a short distance, and further that a borehole is necessary 2,900 feet N. N. E. of No. 37. Lastly Mr. Pearson thinks that a basin of coal exists one mile west of Rajur, and advises a borehole 4,500 feet due west of that village, where if coal be struck the prospects of the country might be further tested to the N. W. and S. E.

On the other hand, Mr. Hughes, Deputy Superintendent, Geological Survey of India, on being requested to express his views on the Rajur and Sasti coal fields, remarks as follows on more extended borings:—"The area around Matra will be sufficiently tested by two boreholes, one adjacent to and north of the village, and another about 800 to 900 yards south of it. I do not anticipate the discovery of workable coal in either of these boreholes, * * * and if the saving of time were an object they might, without any serious detriment to the future welfare of the field, be indefinitely postponed." And referring to the long list of bore-holes he states that "only a determination to work this field could have led to the generous outlay of time, labour and money;" so that, rather than increase this large number, sufficient had been done to utilize the labours of the establishment at some point lower down the Wurda Valley, so as to determine with accuracy the extreme point where coal occurs. Without entering more into this subject, the slightest acquaintance with the results of the boreholes in the vicinity of the localities now proposed will show at a glance the utter uselessness of seeking for coal where there is not the slightest prospect of meeting with workable seams. It might be more cheering, however, to mention that Mr. Hughes, in conjunction with Mr. Feddon of the Geological Survey, alludes to a discovery of some coal rocks as follows:—"We have made out some coal rocks 5 miles of Rajur in the direction of Temburwai and Warur, and I suspect the seam occurs over a lot of ground. I shall refer to it in my annual report."

In addition to boring-work, shaft-sinking was commenced from the 26th October 1871, when the Salar Jung pit was started on the site of No. 2 borehole, where 27 feet of coal had been struck between the village of Sasti and the out-crop of coal on the right bank of the Wurda. The shaft is 10 feet in diameter carried down to a depth of 91 feet, of which 57 feet consists of alluvium, 7 feet of shaly clay, and the last 27 feet of coal.

The work of sinking was stopped about the 31st August 1872. The shaft is steined in with white sandstone down to the coal, which being strong requires no masonry. The sandstone used was quarried from the Sasti Baraka ridge, but it is unfortunately soft and brittle, and the masonry is already much cracked, so that it is probable this pit will not prove of much service when actual workings are taken in hand.

B.—Shaft Doptala, or No. 2 pit, was started on the 13th January 1872 on a ridge near No. 4 borehole, where $11\frac{1}{2}$ feet of coal and shale were struck in two seams. The coal at this borehole occurs 55 feet from the surface, but owing to the difference of level it was expected that they would have to go down 72 feet before they met with the seams. The work of sinking was stopped about the 29th May 1872, on account of the large quantity of water encountered, which is said to have amounted to about 14,000 gallons per day.

The shaft is $8\frac{1}{2}$ feet in diameter and passed through $8\frac{1}{2}$ feet of soil and gravel, 47 feet of sandstone and 5 feet of light grey shale, giving a total of $60\frac{1}{2}$ feet. The last 5 feet of light grey shale was lined in with masonry, and it was assumed that the upper portion was strong enough to stand by itself, but considering the soft and decomposed nature of the rocks it may be questionable whether the whole shaft had not better have been similarly steined in.

C.—Shaft Sasti, or No. 3 pit, situated between Nos. 1 and 2, was started about the 12th February 1872 near the site where No. 8 borehole struck 50 feet coal, shale, &c. The stratum is composed of 37 feet of alluvium with soft yellow sandstone below. The coal is expected at a depth of 75 feet provided it lies horizontal to that struck in No. 8 borehole, which perhaps is not quite certain, as the seam appears to have a low dip to the N. E. The shaft is $8\frac{1}{2}$ feet in diameter carried down to a depth of 50 feet from the surface, being lined in with good brick masonry all through, and promises to be the only shaft that is likely to prove useful for future purposes.

The water encountered in the three pits is not excessive, and in the Salar Jung pit hand-baling alone succeeded in keeping it down. Such simple appliances, however, were not sufficient for the B and C shafts, and, for want of more suitable machinery to contend with, the water these works were closed before reaching the coal.

The general line of water in the Sasti basin is about 66 feet above datum—that is to say, in the A shaft it is about 35·8 feet below the present raised surface. The water in the C shaft is a little nearer the surface, but the pit, which was so troublesome in sinking, is now perfectly dry, the water having been drained into the A shaft, situated 60 chains to the north, somewhat in the direction of the dip. In the Doptala shaft it is about 35 feet from the surface, or 61·19 feet above datum, and appears to occur in greater quantity than at Sasti. The water in the Paoni basin is on an average about 18 feet from the surface, or 85 feet above datum. The height of the highest flood level in Sasti was 96·65 feet, in Doptala 95·76 feet, and in Rajur about 95 feet.

The dip of the Sasti coal is about 2° to the N. E. In the Doptala field the coal in No. 29 borehole divides into two seams which appear to dip at very low angles in opposite directions, the upper to the N. W., and the lower to the S. E., but at the same time to vary. This information is based on the difference of level at the boreholes and the depth at which coal occurs. The seams soon die out in both directions. In the Paoni field the dip is somewhat above 2° to the S. E.

The outcrop on the right bank of the Wurda is said to have been first discovered by Mr. Prinsep in 1839, when the fuel was pronounced to be very inferior, giving under assay above 20 per cent. of ash. The coal thus condemned was examined by Mr. Blandford, of the Geological Survey, in 1867, and after digging a pit near the outcrop he entered the seam to a depth of 7 feet, of which the upper 6 feet were coal and the lower one foot carbonaceous shale. "Coal may of course occur below this, but the sinking at our disposal had become very difficult, owing to the reflux of water, and sufficient had been ascertained to prove the coal of workable thickness, if constant." "As regards the quality, the upper portion of the seam is of course somewhat decomposed—less so, however, than might have been anticipated. The uppermost 3 feet, so far as the state of the coal allows of an opinion, appears to consist of fair coal, but shaly and impure here and there. The lower 3 feet are decidedly superior—indeed, one foot at the bottom appears to consist of an unusually pure and bright coal. Taking the seam as a whole, I anticipate it will yield fair

useful fuel for all purposes. The quantity of pyrites appears to be considerable, but not excessive. It is interspersed throughout, and not in nodules." "The seam may be considered as highly promising."

About the year 1869 the Naib of the Rajur jaghir dug out 500 cartloads of coal from the outcrop, and Mr. White used this two years afterwards in the blacksmiths' workshop, and with good results. On seeing the samples, after long exposure, Mr. Tayler then expressed his opinion that it was a fair average sample of Indian steam coal. Dr. Oldham also, on seeing a sample from the Salar Jung pit, pronounced it to be the most durable yet raised on the Wurda Valley coal field. Subsequently, on the 14th February 1872, some experiments were made of several of 25 lbs. each, burnt in an open grate, and the average results were $3\frac{1}{4}$ lbs. of ash, the result of the coal being converted into volatile matter." "The ash was soft and dropped through the grate into a pan placed below it. The coal burnt freely without caking, slag or cinder. There was a good deal of smoke at first till it was well a-light; and then an intense red heat till it was consumed, save the ashes. The ash is 13 per cent. on the weights burnt, which I believe is a fair average for Indian coals. I am of opinion that it is well adapted for locomotives, as the ashes would drop through the bars without choking the fires."

After going through the coal in the Salar Jung pit Mr. Taylor submitted a statement, on the 19th August 1872, in which he shows 18 different seams of coal, shale, &c., comprised in the 27 feet thickness. Of this amount 18' 7" are characterized as good coal, 5' 1" inferior coal, 4' black smut of coal, 2' 10 $\frac{1}{2}$ " shale, 1 $\frac{1}{2}$ " iron pyrites, the last not regular. Iron pyrites are also distributed in seams Nos. 11, 15, and 17, particularly the first; specimens from each of the above seams were submitted for assay in England, but unfortunately no correct account was kept of them. Some indefinite statements, indeed, are made about the samples being sent in three boxes, A, B, and C, of which the first contained specimens from each of the 17 seams, and the two latter from coal below the sandstone roof, but where the sandstone roof exists it is difficult to conjecture, as the sections show no sandstone whatever. If this refers to the 10th seam of 2 feet strong grey shale, the difficulty is still increased, as the seams below are each separately assayed, and give very different results from the B and C seams. It is thus a matter for regret that so much trouble and expense should have been incurred in sending samples to England for assay without a true record to profit sufficiently by such information, and the more so as the Superintendent of the Geological Survey undertook to have them analyzed without cost, if only the specimens from each seam were submitted to him. The assay now sent in is unsatisfactory, and parts of them perhaps unreliable. The percentage of sulphur, for example, is a great deal more than the very small amount shown in the assay, and even the quantity, .77, taken from the analysis made by Mr. Tween, of the Geological Survey, is perhaps under the mark, at least in regard to such seams as No. 11. Again, as the establishment of iron-foundries has been an object of consideration with the Government, some careful analysis of the ash, to show the qualities prejudicial to smelting purposes, should have been regarded as of great importance, whereas the report on the ash is so meagre that very little can be based upon it. Nor is this a difficulty to be remedied, for, by some extraordinary arrangements, no samples of the different seams of coal at the shaft or from the boreholes have been retained, and although such a record has been recently suggested there appears to be a most strange objection to doing so.

Before proceeding to discuss the quality as developed by assay, it should be mentioned that the coal was first struck in the pit about the end of January 1872, and on the 18th August following the shaft went through the seam, during all of which time the coal was exposed to the deteriorating influence of one monsoon, and it was not till the beginning of September 1872 that the samples for analysis were selected. About the same time an indiscriminate selection was made of 20 gunnybags of the coal taken out of the pit and exposed on the surface, and from this number three sacks were sent on the 23rd October 1872 to the P. and O. S. N. Company, and three sacks to the Bombay Gas Company, when also the samples for assay in England were forwarded. Making some slight allowance for any deterioration, it will be seen that the B and C seams (wherever they are) contain a good

percentage of carbon, while the quantity of ash is not large. All of the samples marked "coal" in Mr. Tayler's tabulation that were analyzed contain a fair proportion of carbon and ash, but the inferior seams Nos. 16 and 14, containing 19.78 and 25.70 per cent. of ash, are little better than extreme carbonaceous shale. The value of a coal for heating purposes varies very nearly as the amount of fixed carbon contained in it, and in a rude way coal may be taken to vary in value in the ratio of the different amounts of carbon contained. The ash in the purest mineral coal amounts to about 0.25 to 1 per cent., but in that which passes for the best it is ordinarily from 5 to 8 per cent., and in most that is used for fuel it is 8 to 15 per cent. A better idea, however, of the general value of the Sasti coal will be obtained from an average of the above assay than from individual samples; and, again, an average between this and the analysis by Mr. Tween will give a still better idea of the general quality of the coal. To appreciate these numbers it will be useful to compare them with such other Indian coals as are likely to come within the range of competition, and to do this an assay of the Berars coal at Kumbari and the Chanda coal at Googoos (being a continuation of the same field separated by the Wurda river) are given in the margin. Again, the average result of 31 different samples from 31 different seams of the Googoos or Chanda coal, and the average of 30 different specimens of the Ranigunj coal, are also given in the margin, whence it will be seen that the Chanda and Ranigunj coals are respectively 13.14 and 6.75 per cent. inferior to the average Sasti coal as to the main heating power, and they are also 8.58 and 2.93 per cent. worse than the same as to the amount of useless matter. Perhaps it is not quite fair to institute a comparison from an average of only 8 samples of Sasti coal, with that of 31 and 30 samples of Chanda and Ranigunj, but I do not think the above over-estimates the Sasti coal.

The "duty" by assay for Sasti, Ranigunj, and Chanda coal is as 58: 51: 45, or as 1.30: 1.14: 1.

The "duty" by assay for English, Sasti, and Chanda coal is as 68: 57.6: 44.5, or as 1.53: 1.30: 1.

In other words, these comparisons by assay show the Sasti coal to be 16 per cent. inferior to English coal, and 23 per cent. and 12 per cent. respectively superior to Googoos and Ranigunj coal.

The above calculations are made by assay; it may now be useful to see the result by actual trials, but to render the comparison more complete it will be necessary to go somewhat into detail in the trials of the Chanda and Ranigunj coals.

For experimental purposes a quantity of Chanda coal was sent to the G. I. P. Railway, and after trial was pronounced to be "not suitable for railway purposes, being very dirty," &c. "The fire-boxes on the G. I. P. Railway are constructed to suit English coal, and the engineers are accustomed to its use. More coal was raised, and better coal selected, and this was sent to the E. I. Railway at Jubbulpore, some to the works in progress by the P. W. D. at Kanhan bridge, and also a second supply to the G. I. P. Railway. The coal took the train 100 miles without difficulty, and the engineers were agreeably surprised with its capabilities, but did not think it quite up to the mark. At the Kanhan bridge work it was tested in a small portable engine." "With Chanda coal steam was raised in one hour and 25 minutes with a consumption of 36 lbs., the coal being wet, a strong breeze blowing, and rain falling at the time. The coal burnt clear, leaving a small residue of grey ash, without clinkers, and evaporated on an average 4 lbs. of water per 1 lb. of coal consumed. With English coal steam was raised in 1 hour 35 minutes with a consumption of 28 lbs., the coal being drier, but small and decomposed from exposure, but the weather was fine and very little wind. The evaporation was at the rate of 6.5 lbs. per 1 lb. of coal." The trial on the E. I. Railway compares Chanda with Ranigunj coal, and the report states that the consumption of the former on two trials was 88½ cwt. and 85 cwt. per 100 miles, against 67 cwt. of the latter.

The working duty between Chanda and English coal (small and deteriorated by exposure) was as 4: 6.5, or 61 per cent., or $\frac{2}{5}$ worse. As compared with Ranigunj coal its duty was as 67: 87, or 77 per cent., or $\frac{1}{4}$ worse. Ranigunj, again, is 16 per cent. worse than the above English coal.

On the other hand, three sacks of Sasti coal somewhat deteriorated and indis-

HYDERABAD AFFAIRS.

criminally selected were forwarded on the 23rd October 1872 to the P. and O. S. N. Company. In this trial Sasti coal is compared with Newcastle, the very best of English coals for steam purposes :—Amount consumed in lighting fire 84 lbs. each. Time taken in getting up steam 45 and 40 minutes respectively. Time under steam 2 hours each. Amount of coal consumed 420 lbs. and 320 lbs. respectively. Quantity of water consumed 1,577 lbs. and 1,603 lbs. Weights of ashes 84 lbs. and 77 lbs. respectively. The coal is described as fast-burning, fair-steaming, very dirty, and 22 per cent. below Newcastle.

Remembering, however, 1, that the coal was not selected ; 2, that it was exposed to the deteriorating influences of one monsoon ; and, 3, that the fire-boxes on the P. and O. S. N. Company's steamers are constructed to suit English coal, and that the engineers are accustomed to its use, the result of the trial must be considered very encouraging.

The percentage deduced by the above trials, and the duty arrived at by the assay of samples as compared with ordinary English coal, will be found to agree tolerably, the samples by assay being 16 per cent. below ordinary English coal, and the trials of Sasti coal deteriorated and indiscriminately selected giving 22 per cent. below Newcastle.

It may be now desirable to compare Sasti coal generally with the Nerbudda coal of the Central Provinces, as the latter fuel is beginning to be used extensively on the N. E. extension of the G. I. P. Railway. From the average assay of seven different specimens it has been shown that Nerbudda coal is 2.11 per cent. below Sasti as to the main heating power, and 9.61 per cent. worse than the same as to the amount of useless matter.

There are a few other coal fields in the Central Provinces, but as the quality of the fuel found in them is still more inferior they may be left out of calculation, especially as they are wanting in lines of communication to open them up to competition. I regret, however, that I am deficient in statistics in regard to the Wurora coal, especially as this is the chief fuel that will compete with the Sasti coal ; but, as these basins lie in the Wurda Valley, Dr. Oldham's statement that the Sasti coal is the most durable establishes the superiority of the Nizam's fuel over that in British territory. I do not myself think the Wurora coal is much superior to the Chanda and Berars fuel, but even allowing it the composition of the average Ranigunj coal it will be an interesting question in the commercial value of these fuels to compare whether the 16 per cent. of inferiority of the Wurora is counterbalanced by the 40 miles of extra carriage attached to the Sasti coal.

In reference to the gas-producing qualities of the fuel, the reports of the English assay and that by Mr. Scott, of the Bombay Gas Company, agree in condemning it. The former describes it as of no value for gas-making, producing but little gas, of a very inferior quality, and no coke. Mr. Scott's letter, however, gives 900 feet of gas of an inferior illuminating power, and 154 lbs. of coke of very inferior quality, to 300 lbs. of coal. The coke thus produced was 51½ per cent., and that of Australian coke (used in Bombay and 11 cwt. to the ton) is 55 per cent. The quantity of gas is 6,720 feet per ton against 9,000 feet per ton of Australian gas.

Mr. Scott designates the coal as anthracitic, which reads rather peculiar when he gives it the extraordinary amount of 70 per cent. (?) of ash. Of course this latter is a mistake, but there can be no doubt that the samples submitted contained a large percentage of carbon, such as is developed in the B and C seams, and it is probable that with some of the coals containing a smaller percentage of carbon and a larger amount of volatile matter, such as is seen in the assays made by Mr. Tween, the result would have been more encouraging. Particular seams have their specialities, and while some containing a large share of carbon are more suited for steam purposes, others containing a greater percentage of volatile matter are better adapted for gas-making, and it is in this respect that the assays from England are unsatisfactory—in not giving a careful analysis of all the different seams contained in the Salar Jung pit.

Mr. Scott observes that in fracture and specific gravity it is similar to Scotch slate coal, but it would have proved of greater service if he had mentioned this specific gravity both for the fuel, and for the gas manufactured. Mr. Scott also states that the coal is perfectly free from bitumen, while the fair percentage of hydro-

carbon oils of tar shown in the English analysis proves quite the contrary. The coal is by no means anthracitic, but it belongs to a variety of non-caking bituminous coal, with a fair proportion of volatile matter and ash, and the apparent mixture of different kinds of coal is caused by its being invariably composed of laminæ of varying thickness, and consisting alternately of a bright jetty black substance and a dull lustreless rock. A pretty fair coke may be, indeed, made from picked specimens where the proportion of the bright jetty black layers is large.

"The quality of Indian coal is usually denoted by the adjective *bad*, but I believe this word has been too freely used. * * * Several attempts have of late been made on one of the short lines of the north of England to burn inferior coal in the locomotive engines, and I have been informed that the experiment proved very successful. The principal modifications of existing arrangements are in connection with the grate and draught, but there are some minor ones with which I am not acquainted. Nearly the same amount of work, it is stated, was accomplished by the inferior coal as is at present worked by the best locomotive coal. How important these practical experiments are in respect to India no one will deny, and I hope the day is not far distant when we shall profit by them."

One of the projects to utilize the British coal and open up the navigation of the Godavery to the Central Provinces was the construction of the Wurda Valley Branch Railway to the town of Chanda, which should proceed as far south as the foot of the 3rd barrier, to the village of Dewulmurri on the east. This line has already been completed as far as Hinghungatt, while the further extension to Wurora is now in hand, and assuming its completion as far as Chanda and the Sasti coal field, the cost of delivering the coal at Bombay will be as follows:—

	Co.'s	Rs.	a.	p.
Cost per ton of coal at pit's mouth, say	4	0	0	
Railway carriage for 550 miles at 8 pies per ton per mile	22	14	8	
Terminal charges	2	8	6	
Total...	29	7	2	

It should, however, be observed that at present the railway rates are very high, and in the event of indigenous coal coming more generally into use in India, it is probable that the charge for minerals, &c., will be reduced, and perhaps not exceed one-half of the above rate, as is the case in most coal-producing countries in Europe, and especially in the United States of America. The price of English coal in Bombay averages at about 30 Rs. a ton, but this is liable to fluctuate, and it has even been as low as Rs. 14 a ton. The present market value is from Rs. 25 to Rs. 27½ a ton, while Australian coal, which is quite as good as English and is being imported in considerable quantities into India, quotes from Rs. 21 to Rs. 24½ a ton. Under these circumstances, it will be seen that the Sasti coal cannot possibly compete with either of the above fuels, and even assuming the railway rates to be reduced by one-half, the chances are still unfavourable for Sasti coal to find a market in Bombay:—

	Rs.	a.	p.
Cost at pit's mouth per ton	4	0	0
Railway carriage for 550 miles at 4 pies per ton per mile	11	7	4
Terminal charges	2	8	6
Total...	17	15	10

That is to say, that the Sasti coal will quote at 28 per cent. and 14·3 per cent. respectively cheaper than the present minimum cost of English and Australian coals, while on the other hand its maximum inferiority is respectively 22 per cent. and 16 per cent. as compared with the imported fuels, and thus, leaving aside any charge of reasonable profit to the Government, the Sasti coal will be 6 per cent. cheaper than the minimum cost of English coal, and ½ per cent. dearer than Australian coal. Except, then, under circumstances of great scarcity of imported fuel, I do not see any advantage in seeking a market in Bombay, nor do I see any necessity for going so far from the seat of produce, especially when we remember the very limited quantity actually proved, and when there are greater chances of success in disposing of it at some nearer point on the line of railway. For example, English coal at Nagpore has been quoted at Rs. 60 to 70 a ton, and even allowing 2 tons of local instead of 1 ton of English coal it is certain that at any place east of Bhosawul a saving

HYDERABAD AFFAIRS.

of Rs. 13 a ton to the Railway Company will be effected by the use of Googoo or Chanda coal ; and if this be the case, how much stronger does the argument apply when the Sasti coal is only 16 per cent. inferior to the ordinary English fuel used on this line, and 23 per cent. superior to Chanda or Googoo coal. This, however, is not the ordinary rate at which English coal is sold at Nagpore, and it would be safer to go into figures on the subject :—

	Rs.	a.	p.
Minimum cost of English coal at Bombay per ton	25	0	0
Freight to Bhosawul (276 miles) at 8 pies per ton per mile	11	8	0
Terminal charges	2	8	6
Total...	Rs. 39	0	6

Similarly, Australian coal at Bhosawul	35	0	6
Cost of English coal at Nagpore, distance from Bombay 519 miles, and calculated as above	49	2	6
Cost of Australian coal at Nagpore	45	2	6
Average cost of English coal between Bhosawul and Nagpore	44	1	6
Average cost of Australian coal between Bhosawul and Nagpore	40	1	6

On the other hand—

Cost of Sasti coal at pit's mouth, say	4	0	0
Freight to Bhosawul, or 274 miles, at 8 pies per ton per mile...	11	6	8
Terminal charges	2	8	6
Total...	Rs. 17	15	2

Cost of Sasti coal to Wurda, distance 80 miles	9	13	10
Cost of Sasti coal to Nagpore, distance 128 miles	11	13	10

Average cost of Sasti coal between Nagpore and Bhosawul	13	8	11
Allowing 22 per cent. for inferiority in working duty as compared with English and Australian coals...	2	15	9

Total...	Rs. 16	8	8
Allowing 25 per cent. profit to Government	4	2	2

Actual average cost of 1 ton of Sasti coal between Bhosawul and Nagpore	20	10	10
---	----	----	----

Saving per ton as compared with English coal	23	6	8
--	----	---	---

Saving per ton as compared with Australian coal	19	6	8
---	----	---	---

Saving on working charges to the Railway Company at 20,000 tons per annum, compared with English coal...	4,68,333½
Saving on working charges to the Railway Company at 20,000 tons per annum, compared with Australian coal	3,88,333½

Profit to Government per annum at 25 per cent. on cost of each ton of coal raised, or Rs. 4-2-2 per ton	82,708½
---	---------

Calculating the above at a reduced rate of 4 pies per ton for Railway carriage, average cost of English coal between Bhosawul and Nagpore	35	13	0
---	----	----	---

Do. " do. do. of Australian coal	31	13	0
----------------------------------	----	----	---

Do. do. do. of Sasti coal	9	14	1
---------------------------	---	----	---

Allowing 22 per cent. for inferiority in working duty as compared with English and Australian coals...	2	2	9
--	---	---	---

Total...	Rs. 12	0	10
Allowing 25 per cent. profit to Government	3	0	2

Actual cost per ton of coal between Nagpore and Bhosawul at 4 pies per ton per mile	15	1	0
---	----	---	---

Saving per ton as compared with English coal	20	12	0
--	----	----	---

Saving per ton as compared with Australian coal	16	12	0
---	----	----	---

Total saving on working charges to the Railway Company, at 20,000 tons per annum, compared with English coal	4,15,000
--	----------

Total saving on working charges to the Railway Company, at 20,000 tons per annum, compared with Australian coal	3,35,000
---	----------

Profit to Government per annum at 25 per cent. on cost of each ton raised, or Rs. 3-0-2 per ton.	60,208½
--	---------

PHYSICAL FEATURES AND NATURAL PHENOMENA.

It should be here remarked that the amount of Sasti coal actually used in the above calculations is 20,000 tons plus 22 per cent. to make up for inferiority in working duty, or 24,400 tons.

Having now established the advantage of using Sasti coal in preference to English or Australian coal, it will be useful to compare it with the Wurora fuel, which is situated 40 miles nearer to the market :—

	Rs.	a.	p.
Difference of 40 miles of extra carriage at 8 pies per ton per mile
Do. do. at 4 pies per ton per mile
Average cost of Wurora coal between Bhosawul and Nagpore at 8 pies per ton per mile
Do. do. do. at 4 pies per ton per mile
Allowing 12 per cent. as minimum inferiority to Sasti coal, extra cost at 8 pies per ton per mile
Do. do. at 4 pies per ton per mile
Therefore actual cost at 8 pies per ton on G. I. P. Nagpore branch
Do. do. at 4 pies per ton per mile
Advantage in favour of Sasti coal at Rs. 1-0-10 and 14 annas respectively.

It must be remembered, however, that the Wurora fuel is very little superior to the Chanda and Berars coal, which were shown to be 23 per cent. below Sasti, and I have over-estimated Wurora in taking it only 12 per cent. below Sasti. Again, I have also assumed that the cost of coal at the pit's mouth will be the same in the two instances, whereas the depth of the coal at Sasti is only 60 feet, against 300 feet at Wurora ; and the quantity of water, which is comparatively trifling at the former, is somewhat considerable at the latter. All these items being in favour of Sasti, the cost at the pit's mouth, under proper management, should in no case exceed from Rs. 2 to Rs. 2½ a ton. On the assumption, then, that the Railway will be extended to Chanda, the prospects of a market for Sasti coal look very fair, and Mr. Hughes anticipated this in believing that such a communication would place the Nizam's fuel on a more equal footing of competition with the Wurora coal. In this manner the Sasti coal can command the market on the G. I. P. Railway from Bhosawul to Nagpore, a distance of 243 miles, and the Nagpore extension to Raipore, for another 160 miles, or making a total of 403 miles.

Next, in considering the N. E. extension of the G. I. P. Railway from Bhosawul to Jubbulpore, as supplied by the Nerbudda Coal and Iron Co.'s fuel at Rs. 11 a ton near Jubbulpore at the pit's mouth (and I believe that at this rate the Railway Company is prepared to take the whole supply of the mines), it may be desirable to see the chances of competition which the Sasti fuel may have at the Bhosawul junction :—

	Rs.	a.	p.
Cost of Nerbudda coal at pit's mouth near Jubbulpore	...	...	...
Carriage to Bhosawul, 340 miles, at 8 pies per ton per mile	...	...	...
	Total...	Rs. 25	2 8
Terminal charges	...	2	8 6
		27	11 2
Cost of Nerbudda coal at Bhosawul with a carriage of 4 pies per ton per mile	...	...	...
Allowing for 3.66 per cent. inferiority to Sasti coal as to main heating power, Rs. 28-11-5 and Rs. 21-5-11 respectively.	...	...	...

The cost of Sasti coal per ton at the same station = Rs. 22-6-11 and Rs. 15-4-9 respectively, giving an advantage to the latter of Rs. 6-4-6 and Rs. 6-1-2 per ton of coal. Remembering, again, that the average proportion of useless matter is as 11.57 : 21.18, or that the Nerbudda coal is 54 per cent. inferior in this respect, under the above calculations the Nizam's fuel has the prospect of commanding the market for at least 100 miles from Bhosawul towards Jubbulpore, and this added to the 403 miles between Bhosawul and Nagpore, already calculated for, makes a total of 503 miles, which, with a minimum of 50,000 tons per annum, will realize to the Government a profit of Co.'s Rs. 2,06,770-13-4 and Co.'s Rs. 1,50,520-13-4 respectively, according as the Railway carriage is 8 pies or 4 pies per ton per mile.

* Allowing 25 per cent. profit to the British Government.

HYDERABAD AFFAIRS.

It would be interesting here to note the increasing demand for Indian coal, which between the years 1858 and 1868 has considerably more than doubled itself. Those lines of railway the termini of which are not at or in connection with Calcutta were supplied almost entirely with imported fuel during the years 1867 and 1868, and during this period the G. I. P. line consumed 116,824 tons, all of which were imported. On the other hand, out of a total consumption in the two years of 447,644 tons on the E. I. Railway only 4,029 tons were imported coal. And in a similar manner those Railways which have a terminus in or are connected by rail with Calcutta are supplied almost entirely by the Indian collieries, using only a very small quantity of imported coal, and that chiefly for "smithy" purposes, &c.

The commercial aspect of the Sasti fuel has been considered in reference to the local demand for the lines of railway in Central India, and it is now necessary to turn to the prospect of river communication to the eastern coast.

As I remarked before, the Wurda Valley Railway was calculated to have its terminus at the foot of the 3rd barrier, but, setting the Railway aside, I believe the work of overcoming this obstacle will be urged on the Nizam's Government, and undoubtedly the navigation of the Godavery above the 2nd barrier (where it principally flows through the Hyderabad territory) and the navigation of the Prehita, Wurda, and Peingunga are even of more importance to the Nizam than to the British Government. And, again, when it is considered that the method proposed of overcoming this obstacle (by constructing a canal in H. H. the Nizam's dominions) will form the basis of a system of irrigation (in a district the best adapted in the country for that purpose), to supplement the supply of a network of magnificent reservoirs of water now lying in a ruinous condition, it is a matter for surprise that the project had not before commended itself to the Government. Assuming, then, a through navigation for five months in the year—

	Co.'s	Ra.	s.	p.
Cost at pit's mouth	4	0 0
Freight to Coconada, say 340 miles at 3 pies per ton per mile	5	5 0
Terminal charges	2	8 0

Allowing 25 per cent profit, or per ton	...	...	11	13 0
	...	...	2	15 3

Total cost of delivering 1 ton of coal at Coconada	14	12 3
--	-----	-----	----	------

On the other hand,—

Cost of the best Ranigunj coal at Coconada	...	...	9	8 0
Allowing 12 per cent. inferiority to the best Sasti coal	...	...	1	2 3

Total cost of Ranigunj coal...	10	10 3
--------------------------------	-----	-----	----	------

Difference in favour of Ranigunj coal	4	2 0
---------------------------------------	-----	-----	---	-----

Or, in other words, the above calculations show that the Sasti fuel cannot compete with Ranigunj at Coconada. I do not think, however, that this is much of a disadvantage, for the quantity of coal required at Coconada would be very limited compared with that required for the lines of railway in Central India, and that, too, for only five months in the year.

The three most important purposes for which coal is now required in India are for railways, for steam vessels, and for the manufacture of iron. For the two first-named purposes, with the important exception of sea-going steamers making long voyages, the coal has been proved by experience to be perfectly adequate, and also for the use of stationary steam engines. The drawbacks to the universal employment of Indian coal, and the reason why, despite its greater cost, English coal is still generally employed for many purposes, and especially for sea-going steamers in long voyages, may be briefly summed up as the following :—

1. The general non-coking property of Indian coal.
2. The small proportion of fixed carbon.
3. The large proportion of ash. This and the last-mentioned disadvantage may be summed up by stating that Indian coals give a much lower duty than any good quality of English coal, and consequently a larger quantity is required to do the same amount of work.
4. Its liability to spontaneous combustion, due to the large quantity of iron

pyrites; and as the proportion of pyrites varies very much in different seams, coal may be found to which this objection does not apply, especially if care be taken that the coal is shipped fresh from the mine, and that it is not exposed to the action of moisture.

With regard to its application to the manufacture of iron, there does not seem any sound theoretical ground for doubting that with the better qualities of Sasti fuel iron may be made in any quantity. The amount of ash, although large, is not greater than some qualities of Welsh coal, which are used in iron-smelting. One great drawback to the quality of the iron will ensue from the proportion of iron pyrites in much of the coal, and an element of importance in its manufacture by the blast-furnace is the composition of the ash of the coal as indicating the presence of sulphuric and phosphoric acids.

Before concluding this report, it may be useful to make a synopsis of the methods of working, &c., adopted in the Ranigunj field.

The deepest shafts in Ranigunj do not exceed 160 feet, while most of them are not greater than 100 feet. The roof is composed of hard shale, slightly liable to fall off in flakes, but this liability does not long continue, and even in galleries many years old no "creep" or bulging of either sides or floor from pressure is perceptible, which is mainly due to the small depths of the shafts.

The system of mining most generally adopted is one of the numerous modifications of the system known in England as "post and stall" or "pillar and board." In the most favourable case the "pillar" and "boards" or galleries are equal in breadth, and three-quarters of the coal is removed in the first instance; but allowing on the one hand for the quantity of coal it may be found practical to "rob" from the pillars before abandoning the mine, and on the other for the quantity of small coal and shale extracted, it is evident that under the most favourable circumstances not more than $\frac{2}{3}$ of the coal can ever be attained in a marketable state, and in most collieries probably not more than one-half.

The "long wall" system of working is unquestionably by far the best and most economical method, especially with seams of small thickness, but greater skill and greater care are necessary in the labourers employed. In seams of coal not exceeding 7 or 8 feet in thickness there does not appear any good reason, with the great facilities afforded in shallow mines and the firmness of rocks, why the "long wall" system should not be adopted.

In mining a seam 40 and 50 feet thick, however, of variable quality,—especially where the proportion of good coal is large, and if the roof prove sound,—it will be an important economic question whether some more advantageous method of mining cannot be adopted than that of removing a small section of the seam, not exceeding 12 feet in height, by "long wall," or, still worse, by "post and stall," more especially as it is highly improbable that the best bands of coal will be found for any distance on the same horizon—a most serious drawback to mining on either of the two English systems mentioned; and the methods adopted for extracting the thick deposits of lignite or brown coal in Germany are deserving of attention.

In comparing the condition of coal mines in India with those in Europe several circumstances must be taken into consideration, one of which is peculiar to collieries, viz., the comparatively low value of unskilled native labour, and the high cost of skilled European attendance. The majority of improvements in England tend to substitute machinery for manual labour. In India the cost of each article differs in an inverse ratio—machinery, from the necessity of importation and transport, being considerably more expensive than in England. Still, should the demand outstrip the supply of labour, improved methods of extraction and the use of machinery must be resorted to, for the purpose of economizing it.

With the coal generally occurring only 60 feet from the surface, the cost of each pit should be very small. The miner's pay is high, being $1\frac{1}{4}$ annas per bucket of 6 maunds of round coal, and an average workman getting out $2\frac{1}{2}$ buckets receives a little over 3 annas a day. The boys and girls who carry the coal from the hewers to the pits, and who are employed in picking coal, &c., above ground, receive $\frac{1}{4}$ to $1\frac{1}{4}$ anna a day. The gin women $1\frac{1}{4}$ to $1\frac{1}{2}$ annas a day.

ANALYSES OF VARIOUS SPECIMENS OF INDIAN COAL.

LONDON, September 14th, 1853.

Name of the place from whence the coal comes.	Description.	Specific gravity of coal.	Cubic feet of gas per ton.	Percentage of coke.	Illuminating power of gas in candles.	Specific gravity of gas.	Remarks.
Neighbourhood of Sylhet	Coarse grain and hackly, streak black and shiny. Fuses slightly; does not decrepitate. Very bituminous...	1.295	10,700	61	14	.462	The coke of this coal is very fair. It has a metallic lustre similar to the best Newcastle coke, and is remarkably free from sulphur.
Singrolee, south of Mirzapore.....	Slaty, with charcoal bands and iron pyrites parallel to the general fracture, cross fracture, cathical, [?] streak dull black, does not fuse, decrepitates strongly.....	1.223	10,400	53	15.5	.436	This is very superior coal for gas, it has many of the properties of lignite, and most likely overlays a bed of cannel coal.
Oxasyah Hills	Massive, fracture irregular in all directions, streak dark brown, decrepitates slightly, swells and fuses.....	1.278	10,200	58	15	.424	A capital coal for steamers, being difficult to break, and would stow tolerably well; the coke is good, and the gas particularly clear and white.
Chota Nagpore	Black, and irregular in fracture with thin bands of jet; slaty, streak blackish-brown; does not decrepitate.	1.342	9,600	72	14.5	.448	A very fair coal but the coke is deficient in metallic lustre. The lowest amount of cubic feet of gas per ton is mentioned.
Raneegunge (Burdwan).	Irregular fracture interstratified with bands of charcoal and earthy matter, does not fuse	1.296	9,400	59	13.5	.429	This coal contains upwards of 10 per cent. of ash, which almost renders it unfit for coking purposes. It contains about 1.8 per cent. of sulphur.
Garesfield (Newcastle) ..	.....	1.275	10,800	73	13.4	.45	This is supposed to be the best coking coal in the world.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. I., page 268 :—

Aurangabad.—Town in the Dominions of the Nizam of Hyderabad, near the north-west boundary ; situated on the Dhudna river, a tributary of the Godavari, latitude $19^{\circ} 54' N.$, longitude $75^{\circ} 22' E.$ Distance from Ahmednagar 68 miles ; from Bombay 175 miles ; and from Hyderabad 270 miles. The population was estimated in 1825 at 60,000, but is reported to be smaller now. The town contains the ruins of many buildings, among which is a palace built by Aurangzeb, at present in a state of complete decay. The most interesting building is a mausoleum, also built by Aurangzeb, to contain the remains of a favourite daughter ; it is said to resemble in a feeble way the Taj Mahal at Agra. Aurangabad was formerly the capital of an extensive province of the same name, comprehending a considerable proportion of the old Deccan (Dakshin) kingdom of Ahmednagar.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. II., page 113 :—

Bidar (Bedar).—Town in the Nizam's Dominions, Haidarabad (Hyderabad) Deccan ; situated near the right bank of the Manjira, 75 miles north-west of Haidarabad town, latitude $17^{\circ} 53' N.$, longitude $77^{\circ} 34' E.$ It was the capital of the Bahmani Muhammadan dynasty, which ruled up to the middle of the 16th century. The town is surrounded by an extensive curtain, now much dilapidated, on one of the bastions of which lies an old gun 21 feet long. There is a minaret in the town 100 feet high, and on a plain to the south-west stand many large tombs. The place is noted for the metal ware to which it has given its name. This is an alloy of copper, lead, tin, and zinc, which is worked into articles of very elegant design, inlaid generally with silver but sometimes also with gold. An interesting account of the manufacture, which is said to be gradually dying out, will be found in Balfour's *Cyclopædia of India*, vol. I., pp. 369, 370.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. III., pages 61, 62 :—

Daulatabad.—Town in the Nizam's Dominions, in latitude $19^{\circ} 57' N.$ and longitude $75^{\circ} 18' E.$, 10 miles north-west from Aurangabad, 170 north-east of Bombay, and 280 north-west of Haidarabad (Hyderabad). Celebrated for its fortress, also known by the name of Deogiri, which has from remote antiquity been the stronghold of the rulers of the Deccan. It consists of a conical rock scarped for a height of 150 feet from the base. The fort has been provided with a counterscarp gallery, and a complete system of countermines. On the summit of the rock is a small platform, on which are mounted a cannon and flagstaff. A short distance outside the ditch is a minaret 100 feet high, said to have been erected in commemoration of the first conquest of the place by the Muhammadans. The hill on which the fort stands rises almost perpendicularly from the plain to a height of about 500 feet, and is entirely isolated. The original name of the place under the Hindus was Deogarh (Deogiri ?). It received the name of Daulatabad from the Emperor Muhammad, son of Tughlak Shah, who proposed to make it the capital of the Empire in place of Delhi, and endeavoured in vain to induce the citizens of Delhi to remove their residences accordingly.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. III., pp. 206-208.

Ellora (Eluru or Verul).—Town in the Nizam's Dominions, Deccan, latitude $20^{\circ} 2' N.$, longitude $75^{\circ} 13' E.$, distant from Aurangabad 13 miles, from Daulatabad 7 miles. Famous for its rock caves and temples. These contain, besides the symbols of Sanskrit mythology and statues of the Hindu deities, several Jain and Buddhist objects of worship.

"The caves," writes Mr. Burgess, the Archaeological Surveyor to the Government of Bombay, "are excavated in the face of a hill, or rather the scarp of a large plateau, and run nearly north and south for about a mile and a quarter, the scarp

at each end of this interval throwing out a horn towards the west. It is where the scarp at the south end begins to turn to the west that the earliest caves—a group of Buddhistic ones—are situated; and in the north horn is the Indra Sabha or Jain group, the other extremity of the series. The ascent of the ghat passes up the south side of Kailas, the third of the Brahmanical group, and over the roof of the Das Avatara, the second of them. Sixteen caves lie to the south of Kailas and nearly as many to the north, but the latter are scattered over a greater distance.

“Most of the caves have got distinguishing names from the local Brahmins, but it may be quite as convenient for the sake of reference to number them from south to north, beginning with the Buddhist caves, of which there are twelve, and passing through the Brahmanical series, of which seventeen are below the brow of the scarp and a large number of smaller ones above, and ending with the Jain ones, of which there are five at the extreme north. There are also some cells and a colossal Jain image on the north side of the same spur in which is the Indra Sabha.

The chief building, called the Kailas, a perfect Dravidian temple, complete in all its parts, is characterized by Fergusson (*History of Indian and Eastern Architecture*, p. 334) as one of the most wonderful and interesting monuments of architectural art in India. “Its beauty and singularity,” continues Mr. Fergusson, “always excited the astonishment of travellers, and in consequence it is better known than almost any other structure in that country, from the numerous views and sketches of it that have been published. It is not a mere interior chamber cut in the rock, but is a model of a complete temple such as might have been erected in the plain. In other words, the rock has been cut away externally as well as internally.” This wonderful structure, of which a detailed account is given by Fergusson (*loc. cit.*) measures 138 feet in front; the interior is 247 feet in length by 150 feet in breadth, the height in some places being 100 feet. This temple as well as the others (which are also described by Fergusson) is said to have been built (about the 8th century) by Raja Edu of Ellichpur—by whom the town of Ellora was founded—as a thank-offering for a cure effected by the waters of a spring near the place.

“All the sculptures and the whole architectural style of the central temple,” says Mr. Burgess, the Archaeological Surveyor of Bombay, “impress me with the conviction that it is later than the Papanath temple at Pattadkal, but probably earlier than the great Sivaite temple of Virupakshadeva there. It has at one time all been painted in a style befitting its elaborateness of sculpture. This painting has been renewed again and again, perhaps in a continuous succession of debased styles, the latest certainly poor enough. But there are still some bits in the roof of the porch, of two or three successive coatings, that would compare favourably even among many of the Ajanta paintings. The lofty basement of the temple is of itself a remarkable conception, with its row of huge elephants and sârdulas or lions, griffins, &c., in every possible attitude, tearing one another or feeding. And then the great hall above, with its sixteen pillars and more pilasters all carved with different details of sculpture; its balcony porches at the sides and double pavilions before the front porch; its vestibule to the sanctuary with large sculpture on each side; and its five shrines round the outside of the principal one and on the same platform all testify to the attempt made to rival and outdo all previous temples of the kind.

“Dedicated to Siva, it is surrounded with figures also of Vishnu and the whole Puranic pantheon. Its sculptures bear testimony to the prevalence of the eclectic Smarta school. The interior and parts at least, if not the whole, of the exterior have been plastered over and painted, and where this has not very long ago peeled off has had the effect of preserving the stone inside from the smoke of wandering jogis’ and travellers’ fires, with which it must for ages have been saturated.

“Unlike any of the preceding cave temples, Kailas is a great monolithic temple, isolated from surrounding rock, and carved outside as well as in. It stands in a great court averaging 154 feet wide by 276 long at the level of the base, entirely cut out of the solid rock, and with a scarp 107 feet high at the back.

In front of this court a curtain has been left, carved on the outside with the monstrous forms of Siva and Vishnu and their congeners, and with rooms inside it. It is pierced in the centre by an entrance passage with rooms on each side. Passing this, the visitor is met by a large sculpture of Lakshmi over the lotuses, with her attendant elephants. There are some letters and a date on the leaves of the lotus on which she sits, but illegible, and probably belonging to the 15th century. On the bases of the pilasters on each side have been inscriptions in characters of the 8th century. As we enter to right and left is the front portion of the court, which is a few feet lower than the rest, and at the north and south ends of which stand two gigantic elephants—that on the south much mutilated. Turning again to the east and ascending a few steps we enter the great court occupied by the temple, whose base measures 164 feet from east to west, by 109 feet where widest from north to south. In front of it and connected by a bridge is a mandapa for the Nandi, and on each side of this mandap a stands a pillar or dvajadand—‘ensign staff’—45 feet high, or with what remains of the trishula of Siva on the top a total height of about 49 feet.”

Ellora was ceded in 1818 by Holkar to the British, who transferred it to the Nizam, in 1822, by the treaty of Haidarabad (Hyderabad).

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. III., page 423 :—

Golconda.—Fortress and ruined city, situated in the Nizam's Dominions, 7 miles west of Haidarabad (Hyderabad) city, latitude $17^{\circ} 22' N.$, longitude $78^{\circ} 26' 30'' E.$ In former times Golconda was a large and powerful kingdom of the Deccan, which arose on the downfall of the Bahmani dynasty, but was subdued by Aurangzeb in 1687, and annexed to the dominions of the Delhi empire. The fortress of Golconda, situated on a rocky ridge of granite, is extensive, and contains many enclosures. It is strong and in good repair, but is commanded by the summits of the enormous and massive mausolea of the ancient kings, about 600 yards distant. These buildings, which are now the chief characteristic of the place, form a vast group, situated in an arid, rocky desert. They have suffered considerably from the ravages of time, but more from the hand of man, and nothing but the great solidity of their walls has preserved them from utter ruin. These tombs were erected at a great expense, some of them being said to have cost as much as £150 000. Golconda fort is now used as the Nizam's treasury, and also as the state prison. The diamonds of Golconda have obtained great celebrity throughout the world ; but they were merely cut and polished here, being generally found at Partial, near the south-eastern frontier of the Nizam's territory.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. III., pp. 499-511 :—

Haidarabad (Hyderabad or the Nizam's Dominions).—A Native State or feudatory kingdom, roughly co-extensive with the Deccan (Dakshin) or central plateau of southern India, which takes its name from its capital, Haidarabad city. “The form of the territory, inclusive of the Haidarabad Assigned Districts known as Berar, is that of a trapezium. Its base is about 420 miles in a direction from north-east to south-west from Hampasagar in latitude $15^{\circ} 10' N.$, longitude $76^{\circ} E.$, to Malkhalghari in latitude $17^{\circ} 49' N.$, longitude $81^{\circ} 30' E.$; its north-eastern side extends from south-east to north-west a distance of 390 miles from Malkhalghari, above mentioned, to Melghat in latitude $21^{\circ} 41' N.$, longitude $77^{\circ} 15' E.$; its north-western in a direction from north-east to south-west, a distance of 220 miles from Melghat, as above, to Phultamba, latitude $19^{\circ} 47' N.$, longitude $74^{\circ} 40' E.$, and the south-western a distance of 330 miles from Phultamba to Hampasagar. Though such is the general outline of the country, the boundaries are marked by numerous sinuosities, causing them to deviate greatly from right lines. The territory lies between latitude $15^{\circ} 10'$ to $21^{\circ} 41' N.$ and longitude $74^{\circ} 40'$ to $81^{\circ} 34' E.$ It is 475 miles in length from south-west to north-east, and about the

same distance in breadth. The area of Berar is 17,728 square miles, that of the remaining portion of the Nizam's Dominions is estimated at about 80,000 square miles, the total area of the whole State being thus about 98,000 square miles. It is bounded on the north and north-east by the Central Provinces; on the south and south-east by territory subject to the Presidency of Madras; on the west by territory subject to the Presidency of Bombay. Within the western part are some small isolated British possessions."

As Haidarabad is one of the leading Native States, the following article has been drawn up in the Foreign Office, Calcutta. The authorities there have deemed it expedient to use as their basis the article prepared by Mr. Edward Thornton under the directions of, and from materials furnished by, the East India Company. But such new information as was available has been added, with a view to bringing it up to date. The inverted commas refer to Mr. Thornton's work.

Physical Aspect.—"Haidarabad is a tract of considerable elevation averaging 1,250 feet above the level of the sea, and some granite summits attain a height of 2,500 feet. The elevation of the fort of Golconda in the city of Haidarabad has been ascertained to be 2,024 feet above sea-level. With the exception of the valley of the Tapti at the northern extremity of the territory, which is bounded on the north by the Vindhya range and on the south by the high land of the Godavari, the whole drainage of the country is either from west to east or from north-west to south-east, discharging into the Bay of Bengal by the channels of the Godavari and the Kistna. The drainage of the valley of the Tapti flowing westward falls into the Gulf of Cambay." This wide expanse of country presents much variety of surface and feature. In some parts it is mountainous, wooded and picturesque; in others flat or undulating. The champaign lands are of all descriptions, including many rich and fertile plains, much good land not yet brought under cultivation, and numerous tracts too sterile ever to be cultivated at all.

"The geological formations are on a large scale, in the north-west being of the great volcanic formation extending through the greater part of the Deccan, consisting principally of trap, but in some parts basalt. In the middle, southern and south-western parts the greater part of the country is overlaid with gneissic formations. In the north-east along the right bank of the Godavari there is much sandstone, some of it carboniferous." Near the junction of the Pengunga with the Wardha and in the valley of the latter river there are coal-fields. Those which have been examined over a small area near Sasti and Paoni show an average of 40 feet in thickness. The quality of the coal hitherto mined is inferior to that of Raniganj, but good enough for railway purposes. Iron ore is found in the same neighbourhood, also limestone and kankar, or nodular limestone at Kamaram in the extreme east; and 100 miles north-east of Ellore there is also a small coal-field. At Shahabad, near the junction of the Great Indian Peninsula Railway with the Nizam's State Railway, are quarries of excellent limestone, which are extensively worked for a considerable distance along the line of the latter railway. The stone found is of two colours, grey and black, and takes a polish almost equal to marble. It is now imported to Haidarabad city and exported elsewhere in large quantities for building purposes, for which it is well suited from its regular cleavage and the ease with which it can be worked.

Rivers.—The Haidarabad territory is on the whole well watered, rivers being numerous and tanks or artificial pieces of water very abundant. The Godavari, rising on the eastern declivity of the Western Ghats near Nasik in the British District of that name, takes a course south-east for about 90 miles to Phultamba, where it first touches on this territory, and continues to flow along the border south-eastward for 70 miles to Munjee, in latitude $19^{\circ} 27' N.$, longitude $75^{\circ} 30' E.$ Here it enters Haidarabad territory, through which it holds a course nearly easterly for about 160 miles to the vicinity of Lasona, in latitude $19^{\circ} 7' N.$, longitude $77^{\circ} 5' E.$ At that place it receives on the left side the Dudna river, which flows from the north-east and has a considerable stream after its junction with the Purna river. About 85 miles lower down, in latitude $18^{\circ} 48' N.$, longitude $77^{\circ} 55' E.$, it receives on the right side the Manjira. It thence continues to hold a course generally easterly for about

190 miles to Kulaissar, in latitude $18^{\circ} 52' N.$, longitude $79^{\circ} 53' E.$, where, on the left, it receives the Pranhita, a large river from the north. After the confluence, turning south-east it flows for about 155 miles in that direction along the south-western base of the mountains of Bastar to Kottur, in latitude $17^{\circ} 29' N.$, longitude $81^{\circ} 29' E.$, where it passes into Godavari District of the Madras Presidency. Below Kulaissar it forms the north-eastern boundary of Haidarabad territory. Thus the total length of this great river along the border and through the territory is about 600 miles, for above 200 of which it is navigable from June to February. The Wardha, rising in the hills of Betul and Chhindwara Districts of the Central Provinces, flows south-west for a few miles, and first touching on this territory at Gudra, in latitude $21^{\circ} 35' N.$, longitude $78^{\circ} 25' E.$, thence flows towards the south-east 170 miles towards Chanda. In latitude $19^{\circ} 55' N.$, longitude $79^{\circ} 15' E.$, it receives on the right side the Penganga, a large river, from the west, which for the greater part of its course forms the boundary between East Berar and the more southern portions of the Nizam's Dominions. After the junction with the Penganga the Wardha continues to flow in a south-easterly direction for 60 miles, and in latitude $19^{\circ} 37' N.$, longitude $79^{\circ} 15' E.$, on the left bank receives the Wainganga, from the north. Below the confluence, the united stream, now called the Pranhita, flows in a tortuous direction, but generally south, for about 80 miles to Kulaissar, in latitude $18^{\circ} 52' N.$, longitude $79^{\circ} 53' E.$ This stream, through nearly its whole length, whether denominated the Wardha or the Pranhita, marks the boundary between this territory and the Central Provinces. It is navigable for about 170 miles. The Kistna or Krishna, rising near Mahabaleshwar, in the Western Ghats, holds a course south-east for about 320 miles to latitude $16^{\circ} 10' N.$, longitude $76^{\circ} 18' E.$ where it touches and 10 miles further passes into this territory, through which it flows in a direction generally north-east for about 75 miles to Kadlur, in latitude $16^{\circ} 24' N.$, longitude $77^{\circ} 20' E.$, where on the left bank it receives the Bhima from the north-west and is soon after spanned by the Great Indian Peninsula Railway bridge. From near this point the river, turning south-east, flows 80 miles in that direction to its confluence with the Tungabhadra in latitude $15^{\circ} 58' N.$, longitude $78^{\circ} 19' E.$, where it turns north-east and flows 180 miles to latitude $16^{\circ} 50' N.$, longitude $80^{\circ} 10' E.$, at which point it passes into Kistna (Krishna) District of the Madras Presidency. From the confluence to the point last named it forms part of the south-eastern boundary of Haidarabad territory. Thus its total length of course connected with this territory is 345 miles, but in consequence of the ruggedness of its bed it is of little use for navigation. The Tungabhadra, formed by the junction of the rivers Tunga and Bhadra in Mysore, flows north-eastward, and at Mudlapur, in latitude $15^{\circ} 8' N.$, longitude $76^{\circ} 1' E.$, first touches this territory, along the south-eastern boundary of which it flows, separating it from the Madras Districts of Bellary and Karnul (Kurnool) for a distance of 200 miles, to its confluence with the Krishna. Many other streams (considerable rivers during the periodical rains, but much reduced in volume at other times of the year) discharge into these main channels of drainage. Tanks are, as before observed, numerous, and some of them are of very great size, as that at Palshal, which is at least 30 miles in circuit. They are generally formed by throwing an embankment across the lower end of a valley, and thus causing the accumulation of the water of such streams as may flow into it.

"The climate may be considered in general good; and as there are no arid, bare deserts, similar to those of Rajputana and some other tracts of Northern India, the hot winds are less felt. In the vicinity of the city of Haidarabad the mean temperature indoors, according to observations made at sunrise, at two o'clock in the afternoon, and at sunset for one year, was in January $74\frac{1}{2}^{\circ} F.$; February $76\frac{1}{4}^{\circ}$; March 84° ; April $91\frac{1}{2}^{\circ}$; May 93° ; June 88° ; July 81° ; August $80\frac{1}{4}^{\circ}$; September 79° ; October 80° ; November $76\frac{1}{2}^{\circ}$; and December $74\frac{1}{2}^{\circ}$; giving as an annual mean $81\frac{1}{2}^{\circ}$. Ophthalmic diseases are prevalent in the sandstone district. The wells in general yield impure, unpalatable water, productive of disease, especially the dracunculus or guinea-worm, from which those who use the water from tanks or streams are exempt."

The annual fall of rain is estimated at from 28 to 32 inches at Haiderabad ; this occurs principally during the south-west monsoon, between June and October. In the north-west monsoon there is a fall of only 4 to 7 inches. The winds are generally westerly in June, July, August and September ; during October, November, December, January and February they blow from the east ; and in March, April and May the north-westerly breezes are frequent.

Animals.—Horses adapted for military or general purposes are not reared in the same number as formerly in the Nizam's Dominions. The chief mart for Deccan-bred horses is a fair at Malegaon, in Bidar District, about 160 miles from Haiderabad and 200 from Poona. There is also a horse bazar near the capital, which is open throughout the year, and is resorted to by merchants from almost every quarter of Asia, with strings of elephants, horses and camels.

Agriculture.—The soil is in general fertile, though in some parts it consists of chilka, a red and gritty mould, little fitted, from the coarseness of its particles, for purposes of agriculture. Resembling this, but composed of particles more minute, is lal-zamin, a soil also of a reddish hue, and considered by Walker to be formed of the remains of broken-down anthills, which are surprisingly numerous in this country. "Thus," observes the writer just referred to, "we see that those insects, usually looked upon as troublesome and destructive pests, are not without their use in a grand natural operation. The peculiar acid (the formic) which is their chief constituent acts upon the alkali and lime, and most probably on the silica of the rock debris, pulverizing it, and facilitating, in all probability, fresh combinations. The soil, when manured, is fitted for the reception of all kinds of crops without reference to season." Though less extensive than the kinds just enumerated, the regar or black cotton soil occurs in many places, and is esteemed the best of any, and, as indicated by the epithet above applied to it, peculiarly suited for the cultivation of cotton. It requires no manure except that left by sheep, generally fed upon it when under fallow previous to cultivation. This is, however, an important resource, as flocks of sheep are everywhere to be seen. There is also a soil denominated talao-ka-zamin, a black earth dug from the bottoms of tanks, but not much prized, being a stiff clay and containing a profusion of small fresh-water shells. Its extreme tenacity is found unfavourable to vegetation, which is still further thwarted by a large impregnation of carbonate of soda. This, however, is collected in great quantities for manufacturing and commercial purposes. All these soils effervesce with acids, thereby indicating that they contain carbonate of lime. Throughout this territory the ground, wherever left uncultivated, even but for a year or two, becomes covered with a low jungle, composed chiefly of the *Cassia auriculata* and *Zizyphus microphylla*. In process of time the appearance of the jungle is enlivened by the growth of numerous trees, of which the principal are *Butea frondosa*, *Bombax heptaphyllum*, *Erythrina indica*, *Hyperanthera Moringa*, *Cassia fistula*, *Anona reticulata*, *Melia Azadirachta*, *Bauhinia parviflora*, *Capparis trifolia*, *Ficus indica*, *Ficus religiosa*, *Bombax gossipium*, *Feronia elephantum*, and several species of *Acacia*. The toddy palms, *Borassus flabelliformis* and *Phoenix sylvestris*, are extensively cultivated on account of their sap, which is drawn off and fermented into an intoxicating beverage. The cocoanut tree cannot be brought to high perfection even with the greatest care accompanied by the most favourable circumstances, and in consequence its cultivation is very circumscribed. Mango and tamarind trees occur in great numbers about the villages. The betel vine is also cultivated, but in no great quantities. The principal grain crops are rice (of which there are no less than eight varieties), wheat, maize of various kinds, *joar* (*Holcus Sorghum*), *bajra* (*Holcus spicatus*), *ragi* (*Cynosurus corocannus*) ; of oil plants mustard, *Sesamum orientale* and *Ricinus communis* or castor oil plant ; of leguminous growths *Dolichos Lablab*, *Dolichos gladiatus*, *Phaseolus Mungo*, *chenna* (*Cicer arietinum*). Melons, cucumbers, gourds and some other cucurbitaceae are largely grown and form important articles of diet. The gardens produce onions, garlic, carrots, radishes, potatoes, sweet potatoes, coriander, ginger, turmeric, and various kinds of amaranth used as pot-herbs. Tobacco is cultivated

but not to a great extent. Cotton, indigo, and sugarcane are the more important objects of the agriculturist's care. *Al* (*Morinda citrifolia*) and *chayrut* (*Oldenlandia umbellata*), valuable dyes, occur wild and are also cultivated. The cotton-producing capabilities of the country are well known. The produce of Kunar, Idlabad District, which chiefly finds its way to the Hinganghat market, is greatly valued and fetches a high price. In 1875 there were no mills or manufactories in the territory; but a cotton-spinning factory is now under construction in connection with a wealthy European firm in Bombay. Fruit of many different kinds is plentiful. The mango and custard-apple grow wild over large tracts. The melons and pineapples of Haidarabad are as celebrated in their way as the oranges of Nagpur, and the large purple grape of Daulatabad is exported to many distant markets. Plants rich in textile fibre are not less abundant, and will one day, it may be presumed, be utilized on a large scale. Tasar silk, the produce of a wild species of worm, is everywhere gathered in the jungles. Hides, raw and tanned, both of domesticated and wild quadrupeds, are articles of some importance in commerce. Wild bees swarm in all the jungles; consequently wax and honey are very abundant and cheap. Lac, suitable for use as a resin or a dye, may be obtained in quantities far beyond the present demand. Mucilaginous gums are produced in the woods in inexhaustible quantities, and there are some considered not inferior in quality to the best African gums. Of gum resins the most worth notice is that yielded by the *Boswellia thurifera*. Dika-Mali, a resin yielded in great quantities by several species of *Gardenia*, is much used in native pharmacy, and probably might serve important purposes in the arts, but its properties have not been adequately tested. Some sorts of nuts yield oils which might prove important articles of commerce. Cordage is supplied by the common *san* (*Crotalaria juncea*), also by some species of *Bauhinia*, and of admirable quality by *Asclepias tenacissima*. Of timber, the teak (*Tectona grandis*) produced in this territory is stunted and indifferent; but some of fine quality is floated down the river from the forests of Nagpur. Other valuable woods are *Diospyros melanoxylon* and *Dalbergia* or *sissu*."

People.—No census of the population has been attempted in the Nizam's Dominions, with the exception of Berar or the Haidarabad Assigned Districts, which are temporarily under British administration. The statistical abstract relating to British India for 1876-77 gives the population of Berar at 2,226,496 persons, and the population of the remainder of Haidarabad territory is estimated in the same table at 9,000,000. The above estimates would give an average density of population for Berar of 126 to the square mile, and for the rest of Haidarabad of about 112 to the square mile. In the south-eastern part of the territory the Telugu language prevails, and in the south-western districts in the vicinity of the Kistna (Krishna) river Kanarese is spoken. In the northern and western parts Marathi is generally spoken, and as the border-land between this language and the Dravidian languages passes through the Nizam's Dominions there is a considerable intermixture of the people speaking the different languages. The Mahrattas are most numerous in the west. The Musalmans are chiefly to be met with in the capital, and everywhere in the civil and military service of Government. In addition to the Hindu and Muhammadan population, there is a large admixture of Parsis, Sikhs, Arabs, Rohillas, aborigines and others. Owing to the general distribution of arms among all classes, the people of Haidarabad, as of other Native States, present to the casual observer a more formidable appearance than is borne out perhaps by anything in their actual character or disposition. The Telingas, or Telugu-speaking folk, though not in a highly-advanced state of civilization, are by no means sunk in barbarism. They generally inhabit straggling villages in houses built of mud, with pyramidal roofs of palmyra leaves, though a few dwellings are more substantially constructed of brick and tiled. In some of the less civilized parts the habitations are mere sheds of palmyra leaves, or hovels made of bamboos and wattle. There is usually to each village a detached fort, constructed either of masonry or mud, about 50 yards square, and containing the dwellings of the Zamindar and his immediate dependants. There is a considerable

proportion of Brahmans among the Telingas ; and the usual diet of these and the higher classes consists of rice in some localities, and of wheat and *joar* in others, with vegetable curries and cakes flavoured with garlic or asafoetida and fried in butter. The Brahmans profess to abstain from animal food ; but the Zamindars of the Kunbi caste consume mutton, poultry and game. The lower orders subsist on *ragi* and other inferior sorts of grain ; all are addicted to intoxication with the fermented sap of various kinds of palms, and spirit distilled from the flowers of the *mahua* (*Bassia latifolia*). Tobacco is generally used, both for smoking and chewing, as well as in the form of snuff. Bhang, or the intoxicating narcotic obtained from hemp, and opium, are also in use but to no great extent. The Gonds, who lurk in the hills and fastnesses, are a wild and savage race ; yet they may be rendered tractable and obedient by kind treatment. At present the majority are nearly in a state of nature, sheltering in caves or hollow trees, and feeding on game when obtainable, at other times on vermin, reptiles, and wild roots or fruits.

Commerce, &c.—The principal items of export are cotton, oil-seeds, country cloth, hides, metal ware and agricultural produce ; those of import are salt from the eastern and western coasts, grain, timber, European piece-goods and hardware. In the absence of any complete system of registration, the only means of approximately estimating the annual value of the trade of the Nizam's Dominions with other provinces is by calculating it from the known yield of the *ad valorem* duties levied at custom-houses. The amount thus deducible would be about £10,000,000 sterling per annum. Among the manufactures of the country may be mentioned the ornamental metal ware of Bedar ; the gold-embroidered cloths of Aurangabad, Gulbarga and other towns ; and the excellent paper of different kinds which is made by the inhabitants of the hamlet of Khaghazpur, near the famous fortress of Daulatabad.

Communications.—The railway line connecting Bombay with Madras traverses the south-western part of the State. The Great Indian Peninsula Railway runs the line as far as Raichor, where it is joined by the Madras Railway. At Wadi, seven miles from the station of Shahabad on the Great Indian Peninsula line, the Nizam's State Railway branches off to Haidarabad and to the military cantonment of Secunderabad (Sikandrabad). From Haidarabad two lines of telegraph separate, one going south-west to Bellary, the other with an easterly direction towards Masulipatam, near the mouth of the Krishna. "The principal roads are the military ones,—(1) from north to south, from Nagpur through the city of Haidarabad to Bangalore ; (2) from south-east to north-west, from Madras and Masulipatam, through the city of Hyderabad to Poona and thence to Bombay ; (3) from south-east to north-west, from the city of Haidarabad to Aurangabad."

Administration.—The revenue of the Nizam's Dominions, Berar included, may be stated in round numbers at £4,000,000, inclusive of receipts from all sources. About two-thirds of the above large sum is collected by the Nizam's own Government from tracts under native rule. The remaining one-third is realized by British officers, principally from Berar. All revenue collected by our Government from districts owning the sovereignty of the Nizam is either spent by us in administering and opening up those districts, or is handed over to him as unexpended balance or surplus. The only feudatory of the Nizam is the Raja of Gudwal, who is independent in his internal administration so long as he pays an annual tribute of Rs. 1,15,000 (say £11,500).

The land revenue is still collected in kind in some parts of the country, the rate of irrigated crops being half to the Government and half to the cultivator. In the parts where it is paid in money the rate is much the same, about 8 annas in the rupee on the value of the crop.

The Haidarabad Government has a mint and a currency of its own. In former days rupees of different kinds were manufactured in various parts of the country. Now there is only one mint, situated inside the city of Haidarabad ; and only one kind of rupee, namely, the halli sicca or rupee of the period, is turned out. Though smaller in disc it is a good deal thicker than our rupee, and the difference in weight and intrinsic value between the two coins is trifling.

History.—The dynasty of the Nizam was founded by Asaf Jah, a distinguished general of the Mughal Emperor Aurangzeb, of Turkoman descent. After a long life at the Delhi court, distinguished alike in war and political cunning, he was in 1713 appointed Subahdar or Viceroy of the Deccan, with the title of Nizam-ul-Mulk (Regulator of the State), which has since become hereditary in the family. The Mughal Empire was at this time torn by internal dissension, and at the same time threatened by the rising power of the Mahrattas. Amid the general confusion Asaf Jah had little difficulty in asserting his independence against the degenerate descendant of Aurangzeb, though he was less successful in repelling the inroads of Mahratta cavalry. On his death in 1748 he was firmly established as an independent sovereign with Haidarabad for his capital, and a kingdom roughly co-extensive with the present State. The right of succession was fiercely contested among his descendants. The claimants most favoured were two. One of these, Nasir Jang, the second son of the deceased ruler, being on the spot when his father died, had seized the treasure and obtained the support of the army, and, moreover, fortified his claim by an alleged renunciation of the right of inheritance on the part of his elder brother. The other, named Muzaffer Jang, was a grandson of Nizam-ul-Mulk by a favourite daughter; and to him, it was said, the succession was conveyed by testamentary bequest. Each of the two candidates had the good fortune to secure the countenance and support of one of the great European Powers then commencing their career of contention for supremacy in the East, the English espousing the cause of Nasir Jang, the French that of his rival, Muzaffer Jang; but after a very brief period dissensions between the commander and his officers caused the retirement of the French force from the field, and Muzaffer Jang, deprived of support, became the prisoner of Nasir Jang. Nasir Jang soon after perished by the hands of some of his own followers, and Muzaffer Jang was proclaimed Subahdar of the Deccan; but his authority was exercised under the control of the French commander Dupleix, whose will was supreme. Muzaffer Jang was not destined long to enjoy even the appearance of power. He fell in an affray with some Pathan chiefs, who having been instrumental in placing him on the throne were disappointed in the amount of reward to which they thought their services entitled. A new occupant of the seat of power was now to be sought; and the French, passing over an infant son of Muzaffer Jang, selected Salabat Jang, a brother of Nasir Jang, to be ruler of the Deccan. Another claimant for the dignity, however, shortly afterwards appeared in the person of Ghazi-ud-din, the eldest son of the Nizam Asaf Jah. The impending contest between the brothers was, however, averted by the sudden death of Ghazi-ud-din; and though the Mahrattas, by whom he was supported, continued for their own purposes to maintain hostilities, their unvarying ill-success disposed them to listen to proposals for procuring their absence on the usual terms. The English and French, however, continued to struggle for power and influence in the Deccan; but the latter were compelled after a while, by the danger threatening their own possessions from the victories gained by Clive, to withdraw from the support of Salabat Jang, who, thus weakened, and apprehensive, moreover, of the designs of a younger brother, Nizam Ali, entered into an engagement with the English, by which he promised to dismiss the French from his country and service, and renounce all connection with them. In 1761 this weak prince was dethroned by his own brother, Nizam Ali, whom, contrary to the advice of the most judicious of his French counsellors, he had entrusted with power, which was used to supplant the donor. Two years afterwards the usurper made further acknowledgment of his brother's favour by putting him to death. In 1765 he ravaged the Carnatic, exercising in his course a measure of cruelty far beyond what was necessary to his purpose; but he retired on the approach of a British force. Still the British Government was anxious to be on better terms with him, partly from a desire to obtain his concurrence to their retention of a maritime district known as the Northern Circars, formerly possessed by the French, but now occupied by the English, who had fortified their right by the firman of the Emperor.

Accordingly, in 1766, a treaty was concluded by which, on condition of a grant of the Circars, the British Government agreed to furnish the Nizam with a subsidiary force when required, and to pay 9 lakhs of rupees (say £90,000) a year when the assistance of their troops was not required. The Nizam on his part engaged to assist the British with his troops. There were other stipulations; and among them one reserving the life-right of Basalat Jang, a brother of Nizam Ali's, in one of the Circars, subject to his good behaviour. The aid of British troops was afforded, as provided by the treaty, to enable Nizam Ali to proceed against Haidar Ali of Mysore, then rapidly rising into power; but after a good deal of vacillation Nizam Ali preferred to unite with that adventurer. The allies, however, were unprosperous, and the Nizam was compelled to sue for peace, which was concluded by a new treaty in 1768. By the sixth article the East India Company and the Nawab of the Carnatic (who was a party to the treaty) were to be always ready to send two battalions of sepoys and six pieces of artillery manned by Europeans whenever the Nizam should require them and the situation of affairs would allow of such assistance being rendered, the Nizam paying the expense during the time such force should be employed in his service. In 1782 Basalat Jang died; but the Company did not obtain possession of the Circar held by him till 1788. The *peshkash* or payment to be made to the Nizam on account of the Circars had fallen into arrear, and was not adjusted till even a later period. These matters, however, having been at length arranged, the British Governor-General, Lord Cornwallis, in 1789 addressed a letter to the Nizam explaining and interpreting the treaty of 1768, but declining to enter into any new treaty as had been suggested. This letter was subsequently declared, by a resolution of the House of Commons, to have the full force of a treaty executed in due form. In it the Governor-General agreed that the force stipulated for in the sixth article of the treaty of 1768 should be granted whenever applied for, provided it was not to be employed against any power in alliance with the Company. In the following year, on the breaking out of a war with Tipu, son of Haidar Ali, a treaty of offensive and defensive alliance was concluded between the Nizam, the Peshwa, and the British Government. Tipu purchased peace at the price of half his dominions, and the Nizam had no reason to be dissatisfied with his share of the spoil. At a later period the Nizam being engaged in war with the Mahrattas claimed the assistance of the British Government under the subsisting relations between them, but the Governor-General, Sir John Shore, was precluded by the treaties with the Mahrattas from interfering further than as mediator, and the Nizam was eventually obliged to conclude an ignominious peace with his enemy. The refusal of assistance, and its results, so incensed the Nizam that he requested that two battalions stationed at his capital as a subsidiary force should be withdrawn. The Nizam now sought safety in the entertainment of a body of troops commanded by French officers, who, however, were dismissed in accordance with the provisions of a treaty concluded in 1798, under the administration of the Earl of Mornington, afterwards Marquis Wellesley. By this treaty a subsidiary force augmented to 6,000 sepoys with a due proportion of field-pieces was assigned to the service of the Nizam. On the fall of Seringapatam and the death of Tipu Sultan the Nizam participated largely in the division of territory, under the partition treaty of 1799, and his share was increased on the Peshwa's withdrawal from the treaty. In 1800 the subsidiary force with the Nizam was further augmented, and the pecuniary payment for its maintenance was commuted for a cession of territory. The country ceded on this occasion consisted of the acquisitions made from Tipu allotted to the Nizam under the treaty of Seringapatam in 1792, and the treaty of Mysore, concluded in 1799, after the destruction of Tipu's power and government. This territory is known to the present time under the title of the Ceded Districts.

By the treaty of 1800 the Nizam agreed to furnish in time of war 6,000 infantry and 9,000 cavalry to co-operate with the British army, and to employ every effort to bring into the field as speedily as possible the whole force of his dominions. But his troops proved very inefficient in the first Mahratta war, and

after the conclusion of the campaign various schemes were from time to time proposed for their reform, with little success. Eventually battalions were raised, which were clothed, armed and equipped like the Company's troops; and for the regular payment of this contingent advances were made in 1843 from the British treasury, on the distinct understanding that in the event of further advances becoming necessary a territorial security for the payment of the debt would be demanded. No efforts, however, were made to pay off the debt, which continued to increase. At last, in 1853, a new treaty was concluded by which the British Government agreed to maintain an auxiliary force of not less than 5,000 infantry, 2,000 cavalry, and 4 field-batteries, and to provide for its payment and for certain pensions and the interest on the debt; the Nizam on his part agreed to cede in trust districts yielding a gross revenue of 50 lakhs of rupees (say £500,000). By this treaty the Nizam, while retaining the full use of the subsidiary force and contingent, was released from the unlimited obligation of service in time of war; and the contingent ceased to be part of the Nizam's army, and became an auxiliary force kept up by the British Government for the Nizam's use. In 1857, when the Mutiny had broken out, the condition of Haidarabad and the Nizam's Dominions became critical; and in July an attack, which was repulsed, was made upon the Residency. The Haidarabad Contingent displayed its loyalty in the field against the rebels. In 1860 a fresh treaty was made by which the territorial acquisitions of the Nizam were increased, a debt of 50 lakhs of rupees was cancelled, and the assigned districts in Berar, yielding a gross revenue of Rs. 32,00,000 (say £320,000) were taken in trust by the British Government for the purposes specified in the treaty of 1853. Under British administration the revenues of Berar have greatly increased. The surplus is paid over to the Haidarabad State.

The present Nizam, Mir Mahbub Ali, was born in 1866. He is the first Muhammadan ruler in India, and is entitled to a salute of 21 guns. The military force of the Nizam consists of 71 field and 654 other guns, 551 artillerymen, 1,400 cavalry and 12,775 infantry, besides a large body of irregulars.

Extracts from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. III., pages 511 to 517.

Haidarabad (Hyderabad)—Chief city and capital of Haidarabad State; situated in latitude 17° 21' 45" N. and longitude 78° 30' 10" E. on the river Musi, which is here between 400 and 500 feet wide. It stands at a height of about 1,700 feet above sea-level, and is distant 389 miles north-west from Madras, 449 south-east from Bombay, and 962 south-west from Calcutta. No census of the population of the town has been taken, but it has been estimated at 200,000. The scenery around Haidarabad is wild and picturesque, the country being hilly and dotted with numerous granite peaks and isolated rocks. Approached from the west the appearance of the city is very striking, the palace and mosques and magnificent pile of buildings erected for the British Residency towering above the outer wall.

A large lake, a few miles south of Haidarabad, supplies the town. When full this sheet of water is nearly 20 miles in circumference and covers an area of 10,000 acres.

The palace of the Nizam, the mosques, and the British Residency are the principal buildings. The former has, however, no pretensions to splendour, but is of considerable size. M. Langles describes it as being more than a league in circumference and guarded by a valiant body of Amazons. Haidarabad is a great Muhammadan stronghold and contains several mosques. The *Juma Masjid* or "Cathedral" mosque, so called after the one at Mecca from which it is designed, is large and crowned by minarets of an extraordinary height. The pillars within consist each of a single piece of granite and are very lofty. In the environs of Haidarabad there are many fine gardens with gorgeous pavilions. That of the Nizam's Minister is said to be wonderfully beautiful. It is enclosed by high walls and in the centre is a marble tank. Carved trelliswork forms an important feature in the building. One of the most interesting places in Haidarabad is the College or *Char Minar* (so called from its four minarets), built upon four grand arches, at which the four

principal streets of the city meet. Above are several storeys of rooms, and formerly each storey was devoted to a science. These apartments are now turned into warehouses.

On the north side of the Musi is an extensive suburb known as the Begam or "Princess" Bazar, because the imposts levied there are a perquisite of the Nizam's principal wife. The British Residency is in this quarter, and communication between it and the palace of the Nizam is maintained by a handsome bridge, planned by Colonel Oliphant, late of the Madras Engineers. It was built in 1831, of squared granite, and has eight arches; the roadway is 24 feet wide. The British Residency was designed by Mr. Russell, and is remarkable, among other things, as having been constructed entirely by native workmen. The north front looks away from the river and the city. It is adorned by a splendid portico, to which leads up a flight of twenty-two steps having on either side a colossal sphinx. From the summit of the steps six Corinthian columns faced with *chunam* stone of dazzling whiteness rise to the top of the upper storey of the main building. The Company's arms in alto-relievo form the central ornament. The interior of the portico is elaborately carved, and the whole building stands in ornamental pleasure-grounds, enclosed by a wall with two gateways. The staircase is the finest in India, each step being a single block of the finest granite; the walls are richly decorated, and the apartments are furnished with the utmost luxuriance. The pavilions, galleries, and terraces are ornamented in the florid style of Oriental architecture, with a profusion of delicate trelliswork, painting, and gilding. The finest private residence in the city is the palace of the *Bara Dari*, or "Twelve Doors," now occupied by the present Minister of the Nizam, Sir Salar Jung.

History.—Haidarabad was founded in 1589, by Kutab Shah Muhammad Kuli, the fifth in descent from Sultan Kuli Kutab Shah, the founder of the dynasty at Golconda in 1512. Muhammad Kuli removed the seat of government from Golconda on account of its want of water and consequent unhealthiness, and built a new city on the banks of the Musi river seven miles from his former capital. He called it Bhagnagar ("fortunate city") from his favourite mistress, Bhagamati; but after her death he named it Haidarabad,—the city of Haidar,—though for many years it retained its former appellation. A fine mosque and the *Char Minar* were among his public works. The history of Golconda and of Haidarabad after 1589 are almost identical. Soon after establishing himself in his new metropolis Muhammad Kuli carried on with the neighbouring Hindoo Rajahs the war which his predecessor, Ibrahim Shah, had begun. He extended his conquests south of the Kistna river: the strong fortress of Gandikota was captured, and one of his detachments sacked the town of Cuddapah. Some of his troops penetrated even to the frontiers of Bengal, and Muhammad Kuli defeated the Raja of Orissa and subjugated the greater part of the Northern Circars. In 1603 an ambassador from Shah Abbas, King of Persia, arrived at Haidarabad with a ruby-studded crown and other magnificent gifts. The palace of Dil-kusha was allotted to the envoy, who remained there six years receiving from Muhammad Kuli £2,000 annually for his expenses. When the ambassador left for Persia an officer of the court of Haidarabad accompanied him, bearing return presents, and amongst them some gold cloth manufactured at Paitan, which it took five years to make. In 1611 Muhammad Kuli died, after a most prosperous reign of thirty-four years. The principal memorials of this monarch are the palace and gardens of Hali Mahal, the Muhammadi gardens, the palace of Nabat Ghat, and the *Juma Masjid* or Cathedral Mosque. According to the accounts of Mir Alum Talib, the King's private treasurer, £2,800,000 was expended on public works during the reign of Muhammad Kuli, and £24,000 was distributed every year among the poor. The King's example of liberality was followed by his nobility; and the number of handsome buildings throughout the dominions of the Kutab Shah monarchs is unsurpassed, if not unequalled, in any other of the Muhammadan kingdoms of the Deccan.

Muhammad Kuli was succeeded by his son Sultan Abdulla Kutab Shah. The Mughals under Shah Jahan, the fifth Emperor (1627-58), now make their appearance in Southern India. Aurangzeb, Shah Jahan's son, was sent as Viceroy into the Deccan by that Prince, who seemed bent on compensating for failures beyond the

Indus by the subjugation of Bijapur and Golconda. The immediate cause of his attack on the latter kingdom was an appeal from Mir Jumla, the Prime Minister, whose son had involved him in a dispute with the court. Mir Jumla, finding himself unable to obtain such concessions as he desired from his own sovereign, determined to throw himself on the protection of the Mughal emperor. Such an opportunity for intrigue suited Aurangzeb's character, and he strongly urged his father to entertain Mir Jumla's petition. Shah Jahan, influenced by this advice, issued a mandate to Abdulla to redress the complaints of his Minister ; but Abdulla was so incensed by this questioning of his independence that he sequestered Mir Jumla's property and committed his son Muhammad Amin to prison. Shah Jahan now despatched Aurangzeb to carry his demands into effect by force of arms. Under pretext of escorting his son Sultan Muhammad to Bengal, to wed the daughter of his brother Prince Shuja, Aurangzeb made a treacherous attack on Haidarabad. The road from Aurangabad (the capital of the Deccan) to Bengal made a circuit by Masulipatam in order to avoid the forests of Gondwana, and this naturally brought the Viceroy within a short distance of Haidarabad. Abdulla Kutab Shah was preparing an entertainment for Aurangzeb's reception, when he suddenly advanced as an enemy and took the King so completely by surprise that he had only time to flee to the hill fort of Golconda, seven miles distant, whilst Haidarabad fell into the hands of the Mughals, and was plundered and half-burned before the troops could be brought into order. Abdulla did all in his power to negotiate reasonable terms, but the Mughals were inexorable ; and after several attempts to raise the siege by force he was at last forced to accept the severe conditions imposed on him, *viz.*, to give his daughter in marriage to Sultan Muhammad with a dowry in land and money ; to pay a crore of rupees (£1,000,000 sterling) as the first instalment of a yearly tribute ; and to make up the arrears of past payments in two years. Mir Jumla remained in the service of the Mughals, and became a favourite general of Aurangzeb and one of the most useful instruments of his ambition.

Abdulla died in 1672 and was succeeded by his son-in-law, Abu Husain, who in his youth had been notorious for dissipated habits. He fell entirely under the influence of a Mahratta Brahman named Madhava Panth, who became his Prime Minister. In 1676, at the invitation of this man, Sivaji, the founder of the Mahratta supremacy, entered Haidarabad with a force of 70,000 men on his way to the Carnatic. He also concluded a treaty with Abu Husain. Sivaji's reception at Golconda afforded grounds for a war with the State of Bijapur, but the invasion was resisted and defeated by Madhava Panth. Sivaji died, in 1680, and was succeeded by his eldest son, Sumbaji, with whom Abu Husain also entered into an alliance. Aurangzeb was prevented from at once turning his arms against Golconda, owing to a convention made by his son Prince Muazim. When, in 1686, Khan Jahan was sent against that State, and found himself unable to oppose its army, he begged urgently for reinforcements : and Prince Muazim was despatched to his assistance. The leader of the Golconda troops proved unfaithful to his cause, and allowed the united forces to proceed unmolested to Haidarabad, where he joined the Mughals with the greater part of his troops. The King, Abu Husain, shut himself in the fort of Golconda ; and Haidarabad was again left open to plunder. Madhava Panth was killed in a popular tumult, and the King accepted such terms as he could obtain. A payment of two millions sterling in money and jewels was demanded. The treaty, however, was of short duration, for in 1687 Aurangzeb formally declared war against Abu Husain. The King bravely defended the fort of Golconda for seven months, and lost it at last by treachery, and was sent a captive to Daulatabad, where he resided until his death. Abu Husain was a very popular monarch, and many anecdotes of his virtues are still current in the Deccan. Aurangzeb immediately took possession of all the territories of Bijapur and Golconda, but his occupation was little more than military. The districts were farmed out and were governed by military leaders, who received 25 per cent. for the expense of collecting the revenue.

No event of any importance occurred at Haidarabad until 1707, the year of

Aurangzeb's death. A dispute for the crown took place between his two sons, Prince Azim and Prince Muazim. The latter was victorious and ascended the throne as Bahadur Shah. Prince Kam Baksh refused to acknowledge his brother as king, and Bahadur Shah, after attempting in vain to win him over by concessions, marched against him to the Deccan, and defeated him in a battle near Haidarabad (February 1708), in which Kam Baksh was mortally wounded. Bahadur Shah then made a truce with the Mahrattas, and affairs in the Deccan remained quiet until the end of his reign, 1712. The Viceroyalty was given to Zulfikar Khan, an adherent of Prince Azim, and the administration of the government to Daud Khan, a Pathan officer who had distinguished himself under Aurangzeb. The death of Bahadur Shah was followed by struggles amongst his sons. The incapacity of the eldest, Jahander Shah, had given a great ascendancy to the second, who was supported by the army and most of the nobility. A battle ensued; Azim-us-Shah was repulsed and slain, and Jahandar Shah remained undisputed master of the throne. One of his first acts was to put all the princes of the blood within his reach to death. Among those whom he could not get into his power was Farrukh Sayyid, the only son of Azim-us-Shah; but the cause of this prince was espoused by the Governor of Behar, Sayyid Husain Ali. The rivals met near Agra on the 28th of December 1712; and on the 1st of January 1713 Farrukh Sayyid ascended the throne, and conferred dignities upon all his adherents. Among these was Chin Khilich Khan, a noble of high rank and a brilliant statesman, to whom was given the title of Nizam-ul-Mulk Asaf Jah. Zulfikar Khan was put to death, and Sayyid Husain Ali appointed Viceroy of the Deccan in his stead. But the Emperor was jealous of his powerful subject and wished to get rid of him. He therefore wrote to Daud Khan, promising him the Viceroyalty if he would attack Husain Ali on his arrival in the Deccan and destroy him. No more acceptable commission could have been offered to Daud Khan than that of revenging the death of his friend and patron Zulfikar; and taking up a position at Burhanpur he proclaimed himself Viceroy, and awaited Husain Ali's appearance. A severe battle was fought, in which Daud Khan was on the point of victory when he was struck by a bullet and killed instantly (1716). Husain Ali immediately took the field against the Mahrattas but was completely routed. He and his brother Sayyid Abdulla Khan, the Wazir of the Deccan, now united their forces against Farrukh Sayyid, whose schemes for the destruction of Husain Ali had proved abortive. In December 1719 the allies advanced upon Delhi, and the Emperor submitted to their demands, that became more exorbitant day by day, and ended in their obtaining possession of the royal citadel and palace, which were occupied by their troops. In February 1719 Farrukh Sayyid was deposed, and two months later put to death by order of Husain Ali and Abdulla Khan. The Sayyids now selected Raffi-ud-daula, who died in a few months. He was succeeded (1719 to 1748) by Muhammad Shah, who was the last independent Emperor that sat on the Delhi throne. The first great event in his reign was the overthrow of Husain Ali and his brother, which was effected in great measure by a league between Nizam-ul-Mulk and Saadat Khan, his coadjutor and rival, and afterwards the founder of the Oudh dynasty. Chin Khilich Khan saw in the disturbed condition of the country an excuse for raising troops; and as he perceived the difficulty of establishing a permanent control at Delhi he determined to lay the foundation of his power on a firmer basis, and turned his attention first to the Deccan. His plans against the Sayyids succeeded. In October 1720 Husain Ali was assassinated, and at the end of the year Abdulla Khan was defeated and taken prisoner by Muhammad Shah; but the power of this monarch was rapidly declining. In January 1722 Chin Khilich Khan arrived at Delhi, and assumed the office of Wazir. He found the court in a state of the utmost weakness; the Emperor and his favourites were given up to pleasure; and after some months of mutual dissatisfaction they devised plans to free themselves from the troublesome counsels of Chin Khilich Khan, also called Asaf Jah. The Wazir was despatched against the refractory Governor of Guzerat, but speedily returned, strengthened by the addition of a rich province. In October 1723, shortly after this victory, Asaf Jah resigned

his post as Wazir, and set off for the Deccan, a proceeding amounting in reality to a declaration of independence. The Emperor, although he graciously accepted Asaf Jah's resignation and conferred on him the title of Lieutenant of the Empire, the highest that could be conferred on such a subject, did not on that account abate his hostility. He sent orders to the local Governor of Haidarabad to endeavour to dispossess the Viceroy, and assume the government of the entire Deccan in his place. Mubariz Khan entered zealously on this task, and succeeded in gathering together a powerful army. Asaf Jah protracted his negotiations for several months, and endeavoured to sow sedition among the adherents of the Governor. At last he was forced to come to open war, and soon gained a decisive victory over Mubariz, who lost his life in the battle, fought in October 1724. As the Emperor had not avowed the attack which he had instigated, Asaf Jah, not to be outdone in dissimulation, sent the head of Mubariz to court with his own congratulations on the extinction of the rebellion. He then fixed his residence at Haidarabad, and became the founder of an independent kingdom, now ruled over by his descendants, who derive from him the title of the Nizams of Haidarabad State. (In the compilation of this section considerable use has been made of Elphinstone's History of India.)

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. III., pages 517-526 :—

Haidarabad (Hyderabad) Assigned Districts.—A province in Central India, better known under the name of Berar, administered by a British officer, entitled the Commissioner of Berar, under the Resident at Haidarabad. Bounded on the north and east by the British Commissionership of the Central Provinces, on the south by the Nizam's Dominions, and on the west by the Bombay Presidency. Lies between $19^{\circ} 26'$ and $21^{\circ} 46'$ north latitude, and between $75^{\circ} 58' 45''$ and $79^{\circ} 11' 13''$ east longitude. Population, according to the Parliamentary Blue Book of 1878 based on the Census of 1867, 2,226,496 persons; area, 17,728 square miles; average density, 126 persons per square mile. The following article is mainly compiled from the Reports by the Resident at Haidarabad from 1872 to 1876, which, in their turn, are based, as regards their topographical and historical sections, on Mr. A. C. Lyall's excellent official account of the province :—

Physical Aspects.—Berar is in the main a broad valley running east and west, lying between the Satpura range on the north and the Ajunta range on the south. The old local name of the valley at the base of the Satpuras was Berar Payanghat, that of the tracts situated among the uplands and hills of the Ajunta range being Berar Balaghat. The real strength of the province is found in the valley at the base of the Satpuras. This valley is watered or drained, as the case may be, by the Purna (an affluent of the Tapti), and a perfect network of streams descending into the main river both from the hills in the north and from the hills in the south. Its soil is one vast superstratum of black loam overlying trap and basalt. Its rainfall is regular and copious; its area is now entirely cultivated, the whole surface being covered over at harvest time by a sheet of crops. Its population is dense, and consists of Kunbis and other hardy and industrious agricultural tribes. It is traversed from west to east of its whole length by the railway from Nagpur to Bombay. It possesses one of the richest and most extensive cotton fields in India and several cotton marts of the very first rank. Its other products, especially millet and oil-seeds, are also excellent. Altogether it is one of the most promising regions to be seen in India; and in respect to natural and material advantages it surpasses any tract in either the Central Provinces or the Deccan.

The area of Berar may be reckoned at a little more than 17,000 square miles, being about equal to that of the kingdom of Greece without the Ionian Islands. Its population is double that of Greece. Its length from east to west is about 150 miles, and its breadth averages 144 miles. The principal rivers are the Tapti, the Purna, the Wardha, and the Pengunga or Pranhita. The province has but one natural lake, the salt lake of Lonar, a great curiosity. The only forests worth mention are those on the Gawilgarh Hills, where about 400 square miles are conserved by the Government. In South Berar there is an additional forest area of

246 square miles under conservancy. The chief timber tree is the babul (*Acacia arabica*). Iron ore is plentiful throughout large tracts on the east, especially in the hills about Karanja, and along the low range close to Amraoti on the north-east. It is not worked by the natives, and the proportion of iron in the ore has not been scientifically determined. The only district within Berar which yields coal is that of Wun, where, stretching along the valley of the Wardha river in a direction rudely north and south, a group of beds of thick coal of fair quality has lately been found. This group may be said to extend from near the Wardha river on the north to the Penganga on the south. The beds associated with the coal can be traced throughout, and although there has not yet been time to prove the existence of coal throughout the entire distance there can be little reasonable doubt that it will be found to occur.

The climate differs very little from that of the Deccan generally, except that in the Payanghat valley the hot weather is sometimes exceptionally severe. It sets in early, for the freshness of the short cold season disappears with the crops, when the ground has been laid bare by carrying the harvest; but the heat does not much increase until the end of March. From the 1st of May until the rains set in, about the middle of June, the sun is very powerful, though its effect is not intensified by the scorching winds of Upper India. The nights are comparatively cool throughout, probably because the direct rays of the sun have their influence counteracted by the retentiveness of moisture peculiar to the black soil, and by the evaporation which is always going on. During the rains the air is moist and cool. In the Balaghat country, above the Ajunta hills, the thermometer stands much lower than in the plains. On the loftiest Gawilgarh hills the climate is always temperate; the sanitarium of Chikalda is on this range, a few miles from Ellichpur. The average rainfall for the whole province is not yet accurately known; it is said to be about 27 inches a year in the valley, and about 30 inches above the Ghats. On the Gawilgarh hills it is, of course, much heavier.

Administration.—The province of Berar is divided into two divisions, distinguished as East and West Berar. Hence, probably, the origin of the common expression the Berars; which has, however, no warrant either in the history or the geography of the country. Five districts, and one subdivision of a district, each with an average area of 2,833 square miles, are comprised in the above two divisions. These, again, are subdivided into 21 tahsils, or revenue and judicial subdivisions, with an average area of 810 square miles. There are 71 magistrates of all grades, most of them exercising civil and revenue powers.

There are 7,662 villages in Berar, at an average distance of 23 miles from the nearest court. One Commissioner has his head-quarters at Akola, the other at Amraoti. The principal towns of the province are—Amraoti, population 23,410; Khamgaon, 9,432; Ellichpur, 27,782; Akola, 15,920; Shegaon, 7,450; Akot, 14,006; Karanja, 11,750. There are not more than 31 towns in which the population exceeds 5,000. Marathi is the local vernacular of the whole province.

The land revenue demand in 1872-73 was Rs. 59,04,058 (£590,406), and the gross revenue Rs. 80,97,824 (£809,782). Subjoined is a table showing the contributions to these totals from the several districts, with the population of each, as ascertained by the Census of 1867, since which date signs of increase, especially in the town population, have been plainly observed:—

Area, Population and Revenue of Berar.

NAME OF DISTRICT.	Area in square miles, 1878.	Land Revenue in 1872-73.	Gross Revenue in 1872-73.	Population in 1867.
		Rs.	Rs.	
Akola	2,654	17,67,013	24,00,032	460,615
Amraoti	2,767	14,26,600	21,51,747	501,331
Ellichpur	2,623	9,09,371	12,60,105	278,576
Buldana	2,807	9,30,772	10,75,888	365,779
Wun	3,919	3,82,363	6,45,690	323,689
Bassiri	2,958	4,87,939	5,64,362	276,408
Unaccounted for .....	.....	.....	.....	20,098
Total...	17,728	59,04,058 (£590,406)	80,97,824 (£809,782)	2,226,496

History.—In early times the greater part of the Deccan, as far northward as the Narbadda (Nerbudda), was subject to Rajput Princes of the Chalukya race, whose capital was at Kalyan near Gulbarga, from about 1000 A.D. to 1200 A.D. Ram Dev, who was conquered and slain by Ala-ud-din, was the last of the Yadava line of kings, who reigned, not without fame, at Deogarh, the modern Daulatabad, down to the end of the 13th century A.D. We may be allowed to guess that Berar was at one period under the sway of Kalyan or of Deogarh, probably of both successively, though the south-eastern district of the old province may have belonged to the kingdom ruled by the ancient Hindu Rajas at Warangul. Remains of ancient Hindu architecture attest the received hypothesis that the province must long have formed part of that principal Rajput kingdom which occupied the heart of the Deccan. But local tradition tells of independent Rajas who governed Berar from Ellichpur, which is said to take its name from one of them, called Raja Adil. The same authority states, what may possibly be corroborated by architectural relics which have yet to be examined by the competent antiquary, that the princes or governors of Berar immediately before the Muhammadan invasion were Jains. In A.D. 1294 Ala-ud-din, nephew and son-in-law to the Delhi Emperor, Firoz Ghilzai, made his first expedition into the Deccan. After defeating the Yadava Prince, Ram Deo, at Deogarh, he is said to have been bought out of the country by a heavy ransom, accompanied by the cession of Ellichpur. Soon after his return to Upper India Ala-ud-din murdered his uncle and usurped the Delhi throne. Throughout his reign the Deccan was plundered by successive bands of Muhammadans from the north; but on his death the Hindus seem to have recovered the provinces previously subject to Deogarh. However, this insurrection was crushed in 1318-19 by Mubarak Ghilzai, when he flayed alive the last Hindu Prince of Deogarh, and Berar has ever since been nominally under the dominion of Muhammadan rulers. Under them it has always kept its distinct name; and there is reason to believe that from the first it formed a separate provincial charge, of course with constant change of boundaries. In 1351 on the death of the Emperor Muhammad Tughlak the southern provinces fell away from his house, and for 250 years maintained their independence of Delhi. For the next 130 years Berar remained under the dominion of the Bahmani kings, so called because the founder of their line was either a Brahman or a Brahman's servant. This man ruled all the Deccan under the title of Ala-ud-din Husain Shah, and divided his kingdom into four provinces, of which Mahar, Ramgarh, and part of Berar formed one. On the collapse of this dynasty in 1526 we find Berar one of the five kingdoms into which the Deccan had virtually split up, fairly embarked on a period of independence under the Imad Shahi Princes, whose capital was Ellichpur. The founder of this dynasty had been, it is said, a Kanarese Hindu captured in war, whom Khan Jahan, Governor of Berar, promoted to high office. He rose to the title of Imad-ul-Mulk and the command of the Berar forces. But he bequeathed to his successors no share either of his good fortune or ability. An attack by the allied Kings of Bijapur and Ahmednagar gave Berar to the latter in 1572. The Ahmednagar dynasty, however, was not destined long to hold possession of the prize. The cession of Berar to the Emperor Akbar by the Ahmednagar Government took place in 1596. In 1599 the great Emperor himself came down to Burhanpur and organized his recent conquests. Ahmednagar was taken, and all the country recently annexed, including Berar, was placed under Prince Danyal (the Emperor's son) as Viceroy, Berar retaining its separate formation as an imperial subah, of which the extent and revenue are pretty accurately known from the *Ain-i-Akbari*. The death of Akbar in 1605 distracted for a time the alteration of the Mughal Government from their new province in the Deccan, and Malik Ambar, who represented Nizam Shahi independence at Daulatabad, recovered the greater part of Berar. This man, an Abyssinian by race, is well known as the great revenue administrator of the Upper Deccan. He first made a regular assessment by fixing the Government share in the estimated produce, commuted to money value, says Duff's *Mahrattas*; but the hereditary revenue officers of Berar assert that the

assessment was on the quality of land; at so much per bigha, said to have been made in 1612. Malik Ambar held his own in these parts until he died in 1628. In 1630 the Mughals recovered Berar and re-established the imperial authority. Shah Jahan divided his Deccan dominions into two governments, of which one comprised Berar, Payanghat, Jalna, and Khandesh; but these were soon reunited under one head. The revenue assessment was reorganized and the Fasli era introduced from 1637-38. It is very difficult, and would not be very profitable, to pursue the separate thread of Berar provincial history through the tangled coil of Deccan warfare from A. D. 1650, when Aurangzeb became Viceroy of the Deccan, until the hour when he died at Ahmednagar in A. D. 1707. Berar underwent its share of fire and sword, Mahratta plundering and Mughal rack-renting. After Aurangzeb's death the Mahrattas consolidated their predominance, and *Chauth* and *Sardeshmukhi* were formally granted by the Sayyid Ministers of the Emperor Farruksiyyar in 1717 upon the six and a half *Subahs* of the Deccan. But in 1720 Chin Khilich Khan, Viceroy of the Deccan under the title of Nizam-ul-Mulk, won his independence by three victories over the imperial lieutenants, or rather over the armies commanded by the partizans of the Sayyid Ministers who governed in the Emperor's name. Nizam-ul-Mulk had been joined by the Subahdar of Berar. The first battle was near Burhanpur in A.D. 1721; the second at Balapur soon after; and the last decisive victory was gained, in August A.D. 1724, at Shakar-Khelda, called Fateh-Khelda from that day, in the present Buldana District. From this date Berar has always been nominally subject to the Haidarabad dynasty. The material and even moral injury caused to this province by the wars of the 18th century must have been wide and deep. Described in the *Ain-i-Akbari* as highly cultivated and in parts populous, supposed by M. de Thevenot in 1667 to be one of the wealthiest portions of the empire, it fell on evil days before the close of the 17th century. Cultivation fell off just when the finances were strained by the long wars; the local revenue officers rebelled, the army became mutinous, and the Mahrattas easily plundered a weak province when they had divided in its sews by cutting off its trade. Wherever the Emperor appointed a jagirdar the Mahrattas appointed another, and both claimed the revenue, while foragers from each side exacted forced contributions; so that the harassed cultivator often threw up his land and joined in the general business of plunder. The Mahrattas succeeded in fixing their hold on this province, but its resources were ruined, and its people must have been seriously demoralized by a *régime* of barefaced plunder and fleeing, without pretension to principle or stability. By the partition treaty of Haidarabad (dated 1804) the whole of Berar, including districts east of Wardha, but excluding certain tracts left with the Nagpur chiefs and the Peshwa, was made over in perpetual sovereignty to the Nizam. The forts of Gawilgarh and Narnala remained subject to Nagpur. A fresh treaty was made in 1822, which settled the frontier of Berar and conferred upon the Nizam all the country west of the Wardha. The tracts lying east of that river were at length formally ceded to Nagpur, but the districts taken by the Peshwa in 1795, and those which had been left to the Bhonsla in 1803, were all restored to the Haidarabad State. The disbanding of large numbers of troops filled the country with gangs of plunderers, and it was sometimes necessary for us to interfere for the preservation of peace, as in 1849, when Apa Sahib was captured and his followers dispersed. Meanwhile the Nizam's finances had sunk into such a desperate state that in 1843 and in several succeeding years the pay of the force maintained under the treaty of 1800 had to be advanced from the British Treasury. The total bankruptcy of the Haidarabad State at length necessitated, in 1853, a new treaty, under which the existing Haidarabad Contingent force is maintained by the British Government in lieu of the troops which the Nizam had been previously bound to furnish on demand in time of war; while, for the payment of this Contingent, and other claims on the Nizam, districts yielding a gross revenue of 50 lakhs of rupees were assigned to our Government. The territory made over to the British under this treaty comprised, besides the Assigned Districts as they now exist, the districts of

Dharaseo and the Raichur Doab. It was agreed that accounts should be annually rendered to the Nizam, and that any surplus revenue should be paid to him. On his part, he was released from the obligation of furnishing a large force in time of war; while the Contingent ceased to be part of the Nizam's army, and became an auxiliary force kept by the British Government for his use. The provisions of the treaty of 1853, however, which required the submission of annual accounts of the Assigned Districts to the Nizam, were productive of much inconvenience and embarrassing discussions. Difficulties had also arisen regarding the levy of the 5 per cent. duty on goods under the commercial treaty of 1802. To remove these difficulties and at the same time to reward the Nizam for his services in 1857 a new treaty was concluded in December 1860, by which a debt of 50 lakhs due by the Nizam was cancelled; the territory of Surapur, which had been confiscated for the rebellion of its Hindu Raja, was ceded to the Nizam; and the districts of Dharaseo and the Raichur Doab were restored to him. On the other hand, the Nizam ceded certain districts on the left bank of the Godavari, traffic on which river was to be free from all duties, and agreed that the remaining Assigned Districts in Berar, together with other districts, yielding a gross revenue of Rs. 32,00,000 (£320,000), should be held in trust by the British Government for the purposes specified in the treaty of 1853, but that no demand for accounts of the receipts and expenditure of the Assigned Districts should be made. Certain territorial exchanges were also effected, with the object of bringing under British administration those lands within the Assigned Districts which were held in *jagir* for payment of troops, or which were allotted for the Nizam's privy purse. The history of Berar since 1853 is marked by no important political events besides the change made under the treaty of 1861. Its smooth course was scarcely ruffled even by the troubles of 1857; whatever fires may have been smouldering beneath the surface, the country remained calm, measuring its behaviour not by Delhi, but by Haidarabad. In 1858 Tantia Topi got into the Satpura hills and tried to break across southward that he might stir up the Deccan, but he was headed back at all outlets, and never got away into the Berar valley. The province has rapidly progressed under British rule. "When it was made over to us," writes Sir Richard Temple in his official report, "the neighbouring districts were full of families who had emigrated thither from Berar, and who, with the usual attachment of the people to their original patrimony, were anxious to return on any suitable opportunity. Thus hundreds of families and thousands of individuals immigrated back into Berar. Many villages in the Nagpur country lost many of their hands in this way, and were sometimes put to serious straits." The American war, which shortly supervened, stimulated the cotton trade to an enormous extent in Berar; wages rapidly rose with the unprecedented demand for labour which followed, and the opening up of the railway system has tended still further to enhance the prosperity of the province.

Population.—The first and, up to the present time (1879), the only Census ever taken in the province was carried out in November 1867. It disclosed a total population of 2,231,565 persons, dwelling in 5,694 towns and villages and inhabiting 495,760 houses; area, as then estimated, 17,334 square miles. A more accurate survey (Parliamentary Abstract, 1878) gives the area at 17,728 square miles; and the last return from the Government of India (quoted in the same Blue-Book) makes the total population 2,226,496. So many years have elapsed since the Census of 1867, and this enumeration was altogether of so experimental a character, that it is not considered advisable to give in this place the details then elicited. These will, however, be found in the articles on the districts constituting the province, viz., Amraoti, Akola, Ellichpur (including Melghat), Buldana, Wun and Basim. The average density of the population in Berar is 126 persons per square mile, a number higher than in any division of the neighbouring Central Provinces, though far below the average of the North-Western Provinces.

The largest towns of the province are Ellichpur (population 27,782), Amraoti (23,410), Akola (15,920), and Akote (14,006).

Agriculture.—The Berar cultivator follows a primitive system of rotation of crops. He manures very little, though as much as he can, since he is obliged

to use so much dung for fuel that he has little to spare for his fields. Good cultivable land is never enclosed for hay and pasture, though plenty of grass is cut and stacked from wide uncultivated tracts; and the working bullocks are well fed, partly on this hay, more generally on the *joar* stalks, and a little on cotton seed. Large droves of cattle, sheep and goats graze on commons and barren wolds. From wells the cultivators irrigate patches of wheat, sugarcane, opium, and market-garden produce. At places they obtain water from small reservoirs and surface streams, especially under the hills and to the southward. But in the Berar valley, which contains the richest land, water is scarce even for the drinking of man and beast; there is a dearth of grass and wood; hired labour is insufficient and dear; capital in agricultural hands is scanty. The cultivators are slowly (though surely) emerging out of chronic debt. Agriculture is supported by the good-will with which all small money-lenders invest in it, because there are no other handy investments which pay so well as lending on bond to the farmers. Cultivation is obliged to support the peasant and his family, to pay the State revenue, to return the capital invested with not less than 18 per cent. interest to the Marwari money-lender, and to furnish the court fees on litigation whenever the rustic sees a chance of evading his bond. But the petty cultivator keeps his hold of the land; no one can make so much out of it as he can; and he is much aided by the customs of *métayer* tenancy and joint-stock co-operative cultivation, which enable him to get cattle, labour, and even a little cash, on favourable terms. On the whole, the Berar cultivator is lazy and easy-going, starts late to his field and returns early. Neither hope of great profits nor fear of ruin will drive him to do the full day's work which is extracted from the English farm labourer. The area under cultivation in 1872-73 was estimated at 5,691,921 acres. *Joar* and cotton are the staple crops of the Province, occupying respectively 37 and 29 per cent. of the entire cultivated area. The other principal crops are wheat and inferior grains, oil-seeds and fibres. Sugar-cane, opium, and tobacco are also grown, to a small extent. The average rental of cotton land is 1s. 11d. per acre, wheat and oil-seed land 2s. to 2s. 3d.; tobacco land 3s. 4d.; land under opium 6s. 8½d.; and that under sugar-cane 8s. 8½d. per acre. The yield per acre of the different crops is as follows:—Rice, 209 lbs.; wheat, 214 lbs.; *joar*, 313 lbs.; gram, 163 lbs.; cotton, 148 lbs.; opium, 4 lbs.; oil-seeds, 204 lbs.; and tobacco, 238 lbs. There is a Government farm at Akola, where numerous interesting agricultural experiments have been carried out. Average prices of produce in 1872-73 were returned as follows:—Clean cotton, 43s. 8d. per cwt.; wheat, 5s. 11d. per cwt.; gram, 6s. 1d. per cwt.; rice, 9s. 6d. per cwt.; *joar*, 4s. 8d. per cwt.; oil-seeds, 16s. per cwt.; and tobacco, 41s. per cwt. Wages in the same year varied from 1s. 4½d. to 1s. 10d. a day for skilled labour, and from 3¼d. to 6¾d. per diem for unskilled labour.

Manufactures and Trade.—A rich agricultural Province like Berar finds it more profitable to raise raw produce to pay for imported manufactures than to pursue manufactures of its own. Cotton cloth, chiefly of the coarser kinds, some stout carpets and a few *charjamahs*, or saddles, are made within the Province. A little silk-weaving goes on, and the dyes are good at certain places. At Dewalghat, near Buldana, steel is forged of fair quality. Nagpur supplies fine cloth; nearly all articles of furniture or luxury come from the west. The following statement shows the value of the imports and exports in 1872-73:—

TRADE OF BERAR IN 1872-73.

	Value of Imports.	Value of Exports.	Total Value.
	Rs.	Rs.	Rs.
East Berar.			
From Central Provinces (northern and eastern border).....	82,62,275	1,15,24,255	1,97,86,530
From Central Provinces and Nizam's Dominions (southeast and southern border).....	44,72,631	23,06,737	67,79,368
West Berar.			
From Khandesh and Bombay (western border)	57,49,060	94,47,633	1,51,96,693
From Aurungabad and Jouna (south-western border)	13,95,384	13,81,135	27,76,519
Total... {	1,98,79,350 £1,987,935	2,46,59,760 £2,465,976	4,45,39,110 £4,453,911

Of the total value of the goods imported into the Province 25·8 per cent. were conveyed by rail, and 18·8 per cent. by road. Similarly of the exports, 43·2 per cent. are credited to rail, and 12·2 per cent. to road.

The following is the quantity of goods exported and imported:—Imports—2,084,538 maunds, viz., by rail, 1,295,236; and by road, 798,302; exports—1,374,812 maunds, viz., by rail, 1,054,411; and by road, 320,401.

Administration.—The gross revenue of the different districts of the Province in 1872-73 has been given above (p. 519), the total amounting to £809,782, of which £590,406 was derived from land. The total expenditure in the same year was £656,627, of which £303,886 were spent on the military establishments (Haidarabad contingent) and £266,156 on the Civil Department. From the very outset the work of education in the Assigned Districts seems to have been fostered by Government without any local assistance. No independent exertion on the part of the people preceded the introduction of the State system; and great difficulty has been experienced in obtaining the support of the leading individuals, whether in town or village. The classification of Government schools and the average daily attendance in 1872-73 are thus shown:—2 high schools, with 122 pupils; 50 middle-class schools, 3,268; 326 lower-class schools, 7,233; 25 female schools, 457; and 1 normal school, 29. Brahmans are represented in the Berar schools by a proportion of nearly 6 per cent., and the Mahammadan element is increasing. Though the percentage of schoolboys to the total population is indicated by so low a figure as ·7, it should be borne in mind that nearly half that population consists of females, and that the census returns of 1867 show 57 boys under 13 years of age to every 100 men. If a calculation based on these figures can be trusted, we may infer that 2 or 3 out of every 100 boys in the Province are enrolled in Government schools. The police force in 1872-73 consisted of 2,632 officers and men, costing £53,852, of which £48,119 was debited to provincial and £5,733 to municipal funds. These figures show one policeman to every 847 of the population. In the same year 11,104 persons were arrested, of whom 8,027 were finally convicted.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. IV., page 73.

Hingoli.—Town in the Nizam's Dominions, Haidarabad (Hyderabad), Deccan; situated in latitude 19° 43' N., and longitude 77° 11' E., on the route from Haidarabad to Akola, 185 miles north-west of the former and 72 miles south of the latter. One of the stations of the Haidarabad Subsidiary Force. Distant from Sikandarabad (Secunderabad) 190 miles north-west.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. V., page 19.

Jalna.—Town in Haidarabad (Hyderabad) State, Southern India. Latitude 19° 50' 30" N., and longitude 75° 56' E., 240 miles north-west of Sikandarabad (Secunderabad), 38 east of Aurangabad, and 210 miles north-east of Bombay. A British cantonment, situated on a gentle declivity, at an elevation of 1,652 feet above the sea, in an arid tract of country. The lines, built in 1827, extend from south-east to north-west, and can accommodate a troop of horse artillery, one regiment of native cavalry, and three regiments of native infantry. Two miles south-west of Jalna is the old town of the same name, once the seat of a flourishing trade, but now rapidly decaying.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. VII., pages 41, 42.

Naldurg.—Fortified town in the Nizam's Dominions or the State of Haidarabad. The following account of a visit made to the fort in 1853 by Colonel Meadows Taylor is taken from *The Story of my Life* (pages 286, 287):—“The fort of Naldurg was one of the most interesting places I had ever seen. It enclosed the surface of a knoll or plateau of basalt rock which jutted out into the valley or ravine of the small river Bori from the main plateau of the country and was almost level. The sides of this knoll were sheer precipices of basalt, here and there showing distinct columnar and prismatic formation, and varying from

50 to 200 feet in height, the edge of the plateau being 200 feet more or less above the river, which flowed at the base of the precipice on two sides of the fort. Along the crest of the cliff on three sides run the fortifications—bastions and curtains alternately, some of the former being very firmly built of cut and dressed basalt, and large enough to carry heavy guns; and the parapets of the machicolated curtains were everywhere loopholed for musketry. On the west side the promontory joined the main plateau by a somewhat contracted neck also strongly fortified by a high rampart, with very roomy and massive bastions, below it a *faussebraye*, with the same; then a broad, deep, dry ditch cut for the most part out of the basalt itself; a counterscarp about 20 or 25 feet high with a covered way; and beyond it a glacis and esplanade up to the limits of the town.

"The entire circumference of the enceinte might have been about a mile and a half; and the garrison in former times must have been very large, for nearly the whole of the interior was covered by ruined walls, and had been laid out as a town with a wide street running up the centre. All the walls and bastions were in perfect repair, and the effect of the fort outside was not only grim and massive but essentially picturesque.

"Naldrug held a memorable place in local history. Before the Musalman invasion in the 14th century it belonged to a local Raja, who may have been a feudal vassal of the great Rajas of the Chalukya dynasty, 250 to 1200 A.D. whose capital was Kalyani, about 40 miles distant; but I never could trace its history with any certainty, and during the Hindu period it was only traditional. The Bahmani dynasty, 1351 to 1480 A.D., protected their dominions to the west by a line of massive forts, of which Naldrug was one; and it was believed that the former defences, which were little more than mud walls, were replaced by them with fortifications of stone. Afterwards, on the division of the Bahmani kingdom in 1480 A.D., Naldrug fell to the lot of the Adil Shahi kings of Bijapur; and they, in their turn, greatly increased and strengthened its defences. It was often a point of dissension between the Adil Shahi and the Nizam Shahi potentates—lying as it did upon the nominal frontier between Bijapur and Ahmednagar—and was besieged by both in turn, as the condition of the walls on the southern face bore ample testimony, as well from the marks of cannon balls as from breaches which had afterwards been filled up. In 1558 Ali Adil Shah visited Naldrug, and again added to its fortifications, rebuilt the western face and constructed an enormous cavalier near the eastern end, which was upwards of 90 feet high, with several bastions on the edges of the cliff; but his greatest work was the erection of a stone dam across the river Bori, which by retaining the water above it afforded the garrison an unlimited supply."

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. VII., page 45 :—

Nandair (Nander).—Town in the Nizam's Dominions or State of Haidarabad (Hyderabad); situated in latitude $19^{\circ} 9' N.$, and longitude $77^{\circ} 23' E.$ (Thurston), on the left or north bank of the Godavari; distant from Haidarabad (Hyderabad) 145 miles north.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. VIII., pages 299, 300 :—

Shorapur.—Formerly a tributary State of the Nizam; situated in the south-west corner of the Haidarabad territory, and since 1860 an integral part of His Highness's Dominions. Bounded on the north by Haidarabad territory, and on the south by the Kistna, which separates it from the Raichur Doab. Chief town, Shorapur; latitude $16^{\circ} 31' N.$, longitude $76^{\circ} 48' E.$ By the treaty of 1800 the British Government engaged to enforce "the just claims" of the Nizam against Shorapur. In 1823 the British Government, having succeeded to the rights of the Peshwa, relinquished the tribute due to it from the Shorapur Raja on condition of the Raja abandoning certain *rusums* (revenue claims) on the neigh-

bouring British Districts. A succession dispute in 1828 commenced a long series of disasters for Shorapur. The State fell into hopeless arrears to its suzerain the Nizam, and in 1841-42 the portion of it to the south of the Kistna was ceded to His Highness in commutation. A British Officer, Captain Gressly, was in the same year deputed to report on the Shorapur State. He was succeeded by Captain Meadows Taylor (1842), into whose hands the practical administration fell, as the sequel of a series of *zanana* intrigues, domestic quarrels, and acts of extravagance by members of the Raja's family. The improvements effected by Captain Meadows Taylor, and the era of prosperity and order which he introduced at Shorapur, form a brilliant example of the administration of a Native State by a British Officer. They are recorded without exaggeration in Meadows Taylor's *Story of my Life*. On his departure in 1853 the affairs of the State began to slip back into their former condition, and the old unsatisfactory relations between Shorapur and the Nizam revived. The Shorapur Raja threw in his lot with the rebels in the mutiny of 1857-58, was sentenced to deportation, and shot himself. By the British treaty of 1860 with the Nizam, Shorapur State was ceded to His Highness in full sovereignty, and has since been an integral part of the Nizam's Dominions.

Extract from Dr. W. W. Hunter's *Imperial Gazetteer of India*, vol. IX., pages 266, 267:—

Warangal.—Ancient town in the Nizam's Dominions, or State of Haidarabad; 86 miles north-east of Haidarabad city. Latitude 17° 58' N., longitude 79° 40' E. Warangal was the ancient capital of the Hindu kingdom of Telingana, founded by the Narapati Andhras. Nothing of accurate historical record is known concerning this kingdom till 1303, when a Muhammadan invasion under Alauddin occurred. It failed to effect any conquest, the army being compelled to retreat after severe suffering. In 1309 another expedition under Malik Kafur succeeded in capturing Warangal fort after a long siege, and in compelling the Raja to pay tribute. Fresh invasions occurred in the reign of Ghiyas-ud-din Tughlak, when Warangal was again captured by the Muhammadans, but recovered by the Hindus in the reign of his successor Muhammad Tughlak. The rising Muhammadan power of the Bahmanis in the Deccan soon came into collision with the Hindu State. In 1538 war ensued on a demand by the Warangal Raja for the restitution of conquests; and this ultimately resulted in the further loss of Golconda, together with much booty, and of his son, who was taken prisoner and put to death by the Bahmani king. Between 1512 and 1543 the remains of the Hindu kingdom were incorporated in the dominions acquired by Kuli Kutab Shah, the founder of the Kutab Shahi dynasty, with its capital at Golconda. Golconda in its turn fell before the Mughal armies of Aurangzeb in 1688.

Report of the River Godavery and its Feeders: their Navigable Capabilities; the Resources and Trade of the adjacent Countries, and the projected Navigation Works in 1863; by R. Temple, Esq., B.C.S., Officiating Chief Commissioner, Central Provinces.

SECTION I.—GENERAL SCOPE AND CHARACTER OF THE NAVIGATION PROJECT.

The Government of India having decided, by a Resolution, No. 5089, dated Fort William, the 29th December 1862, to entrust the control of the Navigation Works and Establishments on the Upper Godavery River to the Administration of the Central Provinces, I desire to submit, for the consideration of His Excellency the Viceroy in Council, such opinions and conclusions as I have been able to form regarding the navigation of that river, and the several matters connected therewith. I have myself travelled up and down the river during the months of August and September last (1862), and have inspected both its banks throughout the whole distance over which the navigation has been practically contemplated; namely, from the Falls of the Wurda near Hingunghat in the Nagpore Province to Dowlaishwaram near the sea, at which point the Delta

commences. I have also visited Coconada, which is the principal seaport where the inland navigation will terminate. During that tour I had the advantage of conferring with Captain Haig, and with all the Officers of the Navigation Department, also with the Civil Officers belonging to the Central Provinces, stationed on the left bank of the river. The distance from the Falls of the Wurda to the gorge where the Godavery breaks through the Eastern Ghat mountains amounts to 370 miles. The whole of that distance so far as the left bank is concerned lies within the Central Provinces, and as far as the right bank is concerned within the Nizam's dominions. Below the gorge the country belongs to the Madras Presidency, and the navigation is practicable during, at least, the greater part of the year. Above the Falls of the Wurda the navigation has never been attempted. It is then to the distance between the two extremities above mentioned that the navigation questions relate.

2. The great natural drainage system, which consists of several rivers converging to the Godavery, and then flowing in an united stream to the sea, has been before described by me and

The River Wurda.

others. It will now suffice to recapitulate briefly the names and characteristics of these. The first is the Wurda, which rising in the Sautpoora range north-west of Nagpore, flows south-east, separating the Nagpore Province from Berar and the Nizam's dominions, till joined by the Pyneungunga a little before reaching Chanda. The Wurda then flows eastwards till joined by the Wyneungunga. It is at the junction that the third or upper and greatest barrier or obstruction to navigation is met with. The length of the Wurda from its source to its junction with the Wyneungunga is 250 miles. As the Wurda passes nearly opposite to Hingunghat it is joined by a smaller stream called the Wunna; near this junction is the point called the Falls, from which, down to the barrier above mentioned, the river is supposed to be navigable at certain seasons, a distance of 101 miles.

3. The Pyneungunga above mentioned rises in the hills south of Berar in the Deccan, and flows south-east for about 320 miles to its junction with the Wurda, running entirely through the

The Pyneungunga.

Nizam's dominions. Information regarding the river is defective, but there is nothing known which would justify the belief of its being practically navigable. In September of 1862 Mr. Farley, under my direction, reached in a steamer about six miles up the Pyneungunga, and was then brought up by a barrier of rocks.

4. The Wyneungunga above mentioned rises in the Sautpoora hills north of Nagpore. Emerging from there it runs south, through the heart of the Nagpore Province, to its junction with the

The Wyneungunga.

Wurda, a distance of 430 miles. This river has been examined carefully by Messrs. Grossilier and Farley in 1861, and must, I fear, be pronounced utterly unnavigable. This is a very unfortunate circumstance.

5. From the junction of the Wyneungunga the river comprising the waters of three rivers—the Wurda, the Pyneungunga, and the Wyneungunga—takes the name of Pranheeta, and flows south-east

The Pranheeta.

for 90 miles, till joined by the Godavery proper, nearly opposite Sironcha. The Pranheeta has indeed a bed of imposing dimensions, much greater than that of the Godavery proper above the junction. The whole length of the Pranheeta below the barrier is navigable, at least in certain seasons. Near midway on its right bank it is joined by the Bibree, a lesser stream. The Pranheeta also separates the Nagpore Province from the Nizam's dominions.

6. The Godavery above mentioned rises in the Western Ghat range, and flows south-west through the Nizam's dominions till it joins the Pranheeta, about 650 miles distant from the source. It

The Godavery Proper.

is believed to be navigable from the junction to Chinoor, a point about 20 miles up, but not much beyond. Even this section of navigable distance may be somewhat precarious. I myself tried to reach Chinoor by steamer in August 1862, but was not able to penetrate more than half-way.

7. From their junction near Sironcha the two rivers Pranheeta and Godavery bear the name of the Godavery alone, and retain that name down to the sea, a distance of 250 miles. But

The Great Godavery.

the Godavery thus described has three considerable affluents, namely, the Indrawutty, the Tal and the Sibbree. All these join the left or British bank of the Godavery. It is remarkable that the river has no considerable feeder on its right bank.

8. The Indrawutty rises in the Eastern Ghat range beyond Bustar. Then flowing westwards, and afterwards turning abruptly southwards, it joins the Godavery about 25 miles below Sironcha. The Indrawutty. a total distance of about 300 miles. It is here that the second or middle of three barriers occurs. The Indrawutty flows for the most part through the Bustar State, which, though a dependency of Nagpore, is yet not regular British territory. It has been examined, more or less, by Captain Glasfurd, Captain Steuart and Dr. Cameron in 1861, and must, I fear, be pronounced quite unnavigable. At a place called Chitterkote, near Bustar, it has Falls of considerable beauty, upwards of seventy feet high.

9. The Tal rises in the Beila-deela hills, in the heart of the Bustar State, and flowing southwards for about 100 miles, chiefly through that territory, joins the Godavery. For the last few miles before the junction it flows through British territory. It has been more or less examined by Captain Glasfurd, and is not navigable, except for a few miles above the junction. I myself reached in a steamer for about five miles.

10. The Sibbree rises in the Eastern Ghat range within the Jeypore State (belonging to Madras Presidency). Then flowing southwards for about 200 miles, and dividing the Jeypore State from the Bustar State, it joins the Godavery. For the last thirty miles it runs through British territory. It has been carefully examined by Mr. Tuke, partially examined by Captain Glasfurd, and must be pronounced as quite unnavigable, except for about the last twenty miles above the junction. I went up this river for ten miles in a steamer in August 1862.

11. Near Bhudrachellum, on the Godavery, between the junction of the Tal and the Sibbree, there occurs the first or lesser of the three barriers.

12. The main line of water communication, then, may be thus stated in miles :—

	Miles.
From Falls of the Wurda to Head of 3rd Barrier	101
The length of Barrier	35
From foot of 3rd Barrier to Head of 2nd Barrier	75
Length of 2nd Barrier	14
From foot of 2nd Barrier to Head of 1st Barrier	68
Length of 1st Barrier to Bhudrachellum	20
From Bhudrachellum to Dowlaishwaram	98
From Dowlaishwaram to Coconada on the sea by Canal	31
Total Miles...	445

13. It abates somewhat from the highest hopes which might be formed for improvement in this country to reflect on the comparatively small proportion out of so vast a river system which is actually navigable. So far as existing information can guide us, there is but little hope of navigation in the greater portion of the various rivers, and this somewhat untoward circumstance may be seen thus :—

	Total Miles.	Unnavigable.	Navigable.
Wurda	250	149	101
Pynegunja	320	314	6
Wynegunga	430	430	0
Pranhceta	90	35	55
Godavery Proper... ..	650	630	20
Godavery Great	250	34	216
Indrawutty	300	300	0
Tal	120	115	5
Sibbree	200	180	20
Total Mileage...	2,610	2,187	423

Thus, out of 2,610 total mileage, only 423 miles are navigable, the rest being unnavigable.

14. Again, it is to be borne in mind that even the navigable portion is not naturally navigable for more than five months, or less than half of the year, that is, only during the monsoon, or rainy season. During the rest of the year the rivers dwindle either into rapids running among the rocks, or into streamlets wandering over the sands. They do indeed rise in hill ranges, and pass through hilly or undulating country, presenting a large area for drainage. But none of these hills are of great height. Nassick, at the source of the Godavery, stands at about 2,000 feet. The sources of the Wurda and Wynegunga are not above 3,000 feet high; that of the Pyne-gunga must be of less altitude. The sources of the Indrawutty, the Tal and the Sibbree must be under 4,000 feet. Again, none of these hills have any perennial, constant, or even frequent supply of water. They have no inherent moisture, no constantly recurring rain, no perpetual verdure. They are, like the plains, deluged for four months and parched up for eight months in every year. For more than half the year the vast area of country traversed by these rivers has its surface quite brown with aridity, except where there may be standing crops. Even the greater part of the jungle and forest sheds its leaves. The absorption of moisture then is unchecked. It is this general characteristic which so materially affects the character of the rivers, and so seriously detracts from the value of a river system which viewed on a map would present such a promising appearance. As has been previously explained, the rivers swell rapidly and immensely soon after the rains commence, and subside and shrink soon after they cease. But in the navigable portions the current of these rivers is not violent nor destructive, nor formed into whirlpools. It is comparatively sluggish, and runs, even in the flood season, at an average of not more than three to four miles per hour. On the Godavery especially it is observable that the barriers form great successive steps in the general level of the ground, and regulate conveniently the fall in the intermediate reaches of the river. Exclusive of the barriers, the general fall of the Godavery, not exceeding one foot per mile, is favourable both for constructing works for the improvement of navigation, and for conducting the navigation itself.

15. It is now seven years since the project of inland navigation for the Godavery and its affluents was formed in 1856, though the design was conceived several years previously. That project was to render the river navigable at three main points where it is obstructed by rocky formations called barriers, either by constructing works in the barriers themselves, or by conducting the navigation round the barriers by means of canals and anicuts. There were also to be various lesser works in the river bed, in the intervals between and beyond the barriers, which intervals are called reaches; and other subsidiary works for the maintenance of a supply of water. The cost of the main works would amount to some sum between half and three-quarters of a million of pounds sterling, and if all the works projected, subsidiary and other, were to be executed, the aggregate would exceed that sum. When this project was conceived, and brought forward tangibly, it was calculated to carry inland navigation for a distance of 450 miles from the sea-coast into the very heart of the Indian Peninsula, and to penetrate into the country of Nagpore and Berar, which, though extensive, and in parts rich and populous, possessing vast undeveloped resources, and having large cotton-growing districts, were yet cut off from the best markets, and were destitute of communication with the sea-coast in any direction. It was to be connected by roads with Eastern Nagpore, called Chutteesgurh, a tract which, naturally fertile, might gradually become populous. It was to be the means of conveying reinforcements and stores to, and improving communication generally with, the military stations in Nagpore and the Deccan. And lastly, it was to cause production to increase, and towns to spring up, along the banks of the river, and throughout the length and breadth of a far extending valley. That these anticipations were sound in principle, that the project was calculated to realize them, and that such an improvement would be worth a large outlay, I have no doubt. I also believe that the project is, at least in most of its

essential parts, practically feasible. Indeed, had no other means of communication been projected, had no railway to Bombay and the Western Coast been undertaken, then the river communication by the Godavery to the eastern coast would have been of vital importance to Central India. And the project, as it then stood, was indeed an imperial one.

16. But since the conception of this noble scheme one disturbing cause has arisen, namely, the construction of the railway from Bombay through Berar to Nagpore. As to the relative capability of the rail or the river to meet the needs of these provinces, that is a question past discussing, as the railway is fast becoming an accomplished fact. It is already entering the limits of Berar, and in two years will be open to Nagpore. Now it is generally believed (and I for one share the anticipation) that the railway will supply all, or nearly all, the requirements of Berar. Whether the rail absorb all the Nagpore traffic or not, it will probably at least take much of the goods and passenger traffic, which would otherwise have been attracted by a navigable river, such as the Godavery is intended to be; and it certainly diminishes, to a considerable degree, the importance of the Godavery to Nagpore. Again, if the Mahanuddy river shall prove fit to carry a large traffic (and it is actually navigated by country boats), then it would take a part of the Chutteesgurh exportable produce, which would otherwise have gone to the Godavery. And there are roads now being opened from Chutteesgurh to the Mahanuddy. The opening of the Mahanuddy route then will diminish the importance of the Godavery to Chutteesgurh. Notwithstanding these drawbacks, however, many of the anticipations first formed in regard to the Godavery project still hold good. If the Godavery route were fairly opened, it is probable that quantities of the Nagpore produce would prefer the river to the rail. The Nagpore province indeed, if properly developed, might find work for both. Again, as the Nagpore troops and military establishments belong to the Madras Presidency, stores of all kinds, and many reinforcements, would come by the Godavery route. And even if the Mahanuddy be opened, still doubtless a portion of the produce of Chutteesgurh would go to the Godavery. As regards the valley of the Godavery itself, and its affluents, the importance of the navigation project is as great if not greater than ever. The progress of events, indeed, has apparently reduced the Godavery project from imperial proportions, and has caused it to be of comparatively local importance, as affecting mainly the Central Provinces, and also, in some part, the Nizam's dominions. Still I believe that it would stimulate production in the Nagpore province, would cause population to increase,—in the southern districts of that province especially,—and would give rise to a great trade with the eastern coast of the Madras Presidency. And if these anticipations be found moderate and reasonable, then perhaps some considerable outlay, to effect such an improvement, would be justified.

SECTION II.—BERAR.

17. From this sketch of the general scope of the project I proceed to examine its bearings on the several districts and territories adjacent, all of which, with the exception of Berar, belong to the Central Provinces. Its bearings, if any, upon Berar can best be explained by the authorities of that province. So far as I can judge, however, it is not to be expected that cotton and other produce from Berar would go down the Godavery, now that the railway is being carried through the whole length of that territory, and close to its principal marts. Although the eastern extremity, Berar does adjoin the upper part of the Wurda river; still the great cotton field on that side commences some miles inland. The black cotton soil of Berar, now so well known, lies not in the valley of the Wurda, but in the valley of the Poorna and its feeders, which flow in a different direction, and are affluents of the Taptee. From Oomraotee, one great cotton mart of Berar, cotton destined for the Godavery would have to go nearly a hundred miles by land carriage to the Falls of the Wurda, the nearest point from which navigation could commence.

Navigation project will hardly affect Berar.

Again, cotton from Khamgaon, the other great mart of Berar, would have to go for nearly 200 miles by land before reaching the Falls of the Wurda. If, however, the navigation were carried only to the foot of the third barrier below Chanda, then the distance of land route from Oomraotee would be 200 miles, and from Khamgaon 300 miles.

18. Quitting, then, the consideration of Berar, I shall examine more particularly the bearings of the project in regard to,—*first*, the country of Nagpore Proper; *second*, the country of Eastern Nagpore, or Chutteesgurh; *third*, the valley of the Godavery itself.

SECTION III.—NAGPORE PROPER.

19. I have first to examine the probable effect of the project upon the country of Nagpore Proper. This country consists, *firstly*, of the plain of Nagpore and the valley of the Wynegunga; *secondly*, of the valley of the Wurda.

20. As regards the first of the two divisions, it is to be observed that the Wynegunga debouches from the Sautpoora range to the north of Nagpore. Below the hills the valley is broad, generally cultivated, and often rich. On the right bank, opposite Nagpore itself, the valley reaches to a breadth of some forty miles of unbroken cultivation, till it is separated by low hills and uplands from the valley of the Wurda. Further down, southwards, the valley of the Wynegunga becomes narrower; these lowlands are cultivated, and irrigation from tanks is abundant; *but the climate in the neighbourhood is very insalubrious*. In the upper portion the cultivation consists of wheat, maize, millet, and oilseeds; in the lower portion it consists mainly of rice.

21. As regards the second of the two divisions, it is to be observed that the Wurda river debouches from the Sautpoora range to the north-west of Nagpore. It is along the left bank of the river that is situated the great cotton field of Nagpore. Immediately below the range the cultivation consists of a narrow strip along the foot of hilly uplands. This strip widens as it proceeds southwards, till it attains a width of from 40 to 50 miles at a point which may be marked by Hingunghat, the cotton mart. Below this the cultivated tract becomes narrower till the city of Chanda is reached. Below Chanda again it becomes contracted to a mere strip of culture along the river bank. Beyond the limits of cultivation—that is, to the eastward—there commences an extent of undulating rough ground of light inferior soil covered with low forest, and generally supposed to be not worth cultivating. But within the limits of cultivation the ground is fully occupied right up to the river. The soil is a black rich loam. The cultivation consists partly of cotton and partly of wheat, millet, oilseeds, and hemp.

22. On the opposite or right bank of the Wurda there is, immediately below the Sautpoora range, the territory of Berar. South of that again is the territory of Woon and other districts of the Nizam's dominions. It is unnecessary that I should say much of Berar, which is not in the Central Provinces. But I should observe, perhaps, that the great cotton field of Berar does not adjoin the Wurda, but, on the contrary, is in a measure separated from the valley itself by low hills or uplands. Below this again the Nizam's country opposite (say) Hingunghat, on the right bank of the Wurda, is hilly, and quite different from the fine expanse of British territory above described. Between the hills and the river there is, generally, a culturable tract, in which, for the last year or two, cultivation is known to have been rapidly increasing.

23. The statistics of cultivation, population and the like, which are being prepared throughout the Nagpore province, are not yet so complete as to enable me to render them for the whole tract. But, approximately at least, the figures may be presented as below, including both divisions of the Wynegunga and the Wurda:—

AREA.	POPULATION.	TOTAL REVENUES.
Square miles.	Souls.	Rupies.
23,000	3,140,000	43,82,000

Regarding the country generally, it is to be observed that, although the population may increase in numbers ; though the same numbers may acquire a greater industry and productive power ; though production may thus increase ; though the kind and quality of produce may be highly improved, yet the area of land under cultivation will not apparently increase to any great extent. The culturable area is for the most part occupied. And, though there may be many detached patches of reclaimable land, there is no great extent of valuable waste. A portion, of course, is reserved in most villages for pasturage. This may be gradually encroached upon by the plough, as the people learn to provide superior fodder for their cattle ; but some grass ground must of course always remain.

24. As regards external trade, the Nagpore country has enjoyed fewer advantages than any province in India, being situate in the very centre of the Peninsula, 695 miles distant by direct route from Calcutta, and 530 from Bombay, 390 from the valley of the Ganges at Mirzapore, 470 miles from the eastern coast to Masulipatam, and 522 miles from the same coast at Cuttack. It has possessed no natural outlets like navigable rivers, and no artificial communications like roads. Nor has its position midway between Calcutta and Bombay given it any commercial advantage whatever. It has grown produce chiefly for its own consumption. It has no special manufactures of its own, nor has it imported largely the products of other places. It will now, however, shortly have the inestimable advantage of railway communication with Bombay, the rail from Berar crossing the Wurda at Nachengau, and passing across the valley of that river up to the city of Nagpore itself. It is further proposed to confer upon it the immense benefit of water communication with Coconada, one of the seaports of the eastern coast.

25. The present external trade of the Nagpore province, as it now exists, is carried on with the sea-board by two principal routes—there being a third, which, however, is at present almost solely used for the conveyance of Government stores to Nagpore, as well as such articles as are in demand by the troops and followers of the Madras army, which garrisons the Nagpore military division. The *first* of these routes is that to the west to Bombay, through Berar and the Deccan, a distance from Nagpore of 530 miles ; the *second* is that to the north-east, to Mirzapore, a distance of 396 miles, and thence east down the Ganges to Calcutta ; and the *third*, that to Masulipatam, on the east coast, a distance, in a direct line by Budrachellum, of 460 miles, or, by the circuitous route through Hyderabad and Neermul, of 523 miles. If the route from Hyderabad to Nagpore by Hingolee is adopted the distance is 88 miles further, and this last is always made use of up to the middle of January.

26. By the first of the above routes, namely, that to the west to Bombay, although, until late years, the trade was carried for the most part on pack bullocks, carts are now almost solely employed. The exports are principally as follows :—Cotton, oilseeds, horns, hides, ghee (or clarified butter), red ochre, coarse cloth. The imports are salt, European piece-goods and cutlery, silver, gold (bullion), silk, European stores, brass and copper vessels, and other articles of hardware, dyes, with miscellaneous articles, such as cocoanuts, almonds, raisins, cocoanut-oil, pistachio-nuts, black pepper, coffee, tea, sandal-wood, camphor, &c.

27. By the second route, namely, that by Mirzapore to Calcutta, the trade is also almost exclusively carried on by wheeled conveyances. Till within the last two years the greater portion of the cotton grown in the Nagpore province found its way to the sea by this route ; but last year at least half the cotton was carried down to Bombay, and during the present year all the cotton has been going there also. The other export from Nagpore to Calcutta consists of hides. The imports are bullion, sugar, brass and copper vessels, and other articles of hardware, silk, European piece-goods, and a few miscellaneous articles, such as spices, &c.

HYDERABAD AFFAIRS.

28. By the third route, namely, that from Masulipatam, the Government traffic, which is considerable, consisting of all the stores of the Kamptee Force, divided among several stations, and for the Nagpore Arsenal, come into the province; a small amount of Masulipatam cloth and tobacco, to the extent of about 200 cart-loads, comes annually for the use of the Madras troops and their followers by this route. But the exports are *nil*, and the carts generally return to Hyderabad empty.

29. In addition to the above, the single article of cocoanuts, to the extent of about one lakh of rupees' (£10,000) worth annually, are imported from Cuttack and the east coast through Raepore. But this is not a through trade, being carried on with the *dépôt* in Eastern Nagpore.

30. Nagpore, though essentially a wheat-producing district, has hitherto sent none of its cereal produce away. On the other hand, it imports both wheat and gram largely from the Nerbudda Valley, and more recently from Chutteesgurh in the east.

31. It will be seen that the external trade of Nagpore is at present scanty, the staple export being cotton, and the imports being mainly salt, which entirely supplies the consumption of Nagpore itself, silk, sugar, bullion, and European piece-goods. The following figures will exhibit the existing trade, in a brief abstract, for an average year, as carefully ascertained from the leading native merchants:—

TRADE WITH BOMBAY.

								Value Rupees.	
Cotton	...	...	85,000	...	13,00,000	Salt	...	2,00,000	10,00,000
Linseed	...	...	1,00,000	...	2,50,000	European Piece-goods	...	...	7,00,000
Gingelly	...	...	50,000	...	1,50,000	Bullion { Silver...	...	...	5,00,000
Horns	...	...	...	...	5,000	{ Gold ...	...	...	10,00,000
Hides (latterly only)	...	...	...	...	5,000	Silk	...	1,200	1,00,000
Ghee, or clarified butter...	10,000	...	1,50,000	...	1,50,000	European Stores	...	7,000	2,00,000
						Articles of Hardware, Brass and Copper Vessels	...	5,000	1,00,000
Red Ochre...	...	...	3,000	...	5,000	Dyes	...	1,000	50,000
Coarse Cloth	...	...	...	...	10,00,000	Miscellaneous	...	35,000	2,00,000

TRADE WITH CALCUTTA.

Hides	...	...	...	...	50,000	Bullion { Silver...	...	...	5,00,000
						{ Gold ...	...	...	3,50,000
						Sugar	...	20,000	...
						Articles of Hardware, Brass and Copper Vessels, &c.	...	5,000	20,000
						Silk	...	4,000	3,00,000
						European Piece-goods	...	...	4,00,000
						Miscellaneous	...	5,000	25,000

TRADE WITH EASTERN COAST.

Military Stores, about 500 Tons.	...	...	30,000
Tobacco and Cloth	...	...	1,00,000
Cocoanuts	...	...	...

Total Exports, Rupees.....29,15,000

Total Imports, Rupees.....55,75,000

32. It will thus be seen that the total value of the trade of Nagpore Proper amounts to about 85 lakhs of rupees, or £850,000, per annum.

33. Such being the present trade, how will it be affected by the navigation?

How is this trade to be affected by inland navigation? In respect to the navigation there are one or two points to be noted primarily. In the first place, there is practically little or no hope of the river being navigable all the year round. This generation, at least, will hardly see the day when such works shall be completed as would render the navigation perfect for twelve months. The longest period now to be hoped for will be six months; even this may be reduced to four or five. But even this period would suffice for many purposes of commerce; a boat would go down to the coast in ten days, and might be towed back in 2½ months, so that she would do one trip there and back within the season.

34. Again, if the obstructions of all the three barriers of the Godavery were removed, there would be river navigation from the sea-coast up to the Falls near Hingunghat for at least a part of every year. If the two first barriers were removed, and not the

Rates of Carriage by River, Rail, and Road.

third or upper barrier, there would still be navigation up to the foot of the third barrier, within 75 miles of Chanda and 115 miles of Hingunghat. The first point to consider, then, would be the cost of this water-carriage. The probable rate has been several times calculated by the projectors of the navigation, upon data derivable from other rivers and other countries. On the whole, I should suppose that the rate per ton per mile by boat going down ought not to exceed three or four pies, or one-third anna, per ton per mile for the generality of produce going down the river. For the upward voyage the boats would have either to be drawn up by means of ropes and towing paths, or else towed up in fleets by steam tugs; in either case the hire back would be at least one-half more than the hire down. Supposing, then, that goods were conveyed by water at 3 or 4 pies ($\frac{1}{3}$ rd or $\frac{1}{4}$ th of an anna) per ton per mile down, and 5 or 6 pies ($\frac{1}{2}$ anna) up, these rates would be cheaper far than any rate of land-carriage ever yet known, and cheaper also than any rate which the railway could offer. The cheapest rate of land-carriage by carts on *made* roads yet attained has been 3 to 4 annas per ton per mile; while the rate upon *unmade* roads is fully half as much again. The rate with pack bullocks is higher still. The rate by the railway from Bombay will, according to the present calculations, range from something less than one anna—that is, from 10 pies—to one anna and a half, say 15 pies. And it is to be remembered that Hingunghat is nearly equidistant from Bombay and from Coconada, being 460 miles (plus 30 miles by road) from Bombay, and 445 miles by water from Coconada. Thus the river would convey the produce at one-third the rate of the rail.

35. The comparison may be seen thus. Suppose the river to be open up to Hingunghat :—

	Rs.	a.	p.
One ton from Hingunghat to Coconada by river, at 3 pies per mile (445 miles),...	6	15	3
Do. returning at 5 pies per mile, ...	11	9	5
One ton from Hingunghat to Bombay, 30 miles by cart at 3 annas per mile, and 460 miles by rail at one anna per mile, ...	34	6	0

Or again thus, calculating from Nagpore :—

One ton from Nagpore, 70 miles, to the Falls by cart, at 3 annas per mile, and from the Falls to Coconada by river, 445 miles, at 3 pies per mile, ...	20	1	3
Do. returning, the navigation being at 5 pies per mile, ...	24	11	5
One ton from Nagpore to Bombay by rail, at an average of one anna per ton per mile (528 miles), costs ...	33	0	0

Thus the difference is greatly in favour of the river over the rail, whether the starting point were from Hingunghat or whether it were from Nagpore.

36. But let us suppose the navigation were open not so far as the Falls near Hingunghat, but only up to the foot of the third barrier; then from that point to Hingunghat there would be at least 115 miles of land-carriage, or to Nagpore 175 miles. In this case the river route would be much more expensive than in the former case, and the cost would be as below :—

	Rs.	a.	p.
One ton from Hingunghat to the foot of the third barrier, at 3 annas per mile, 115 miles, Rs. 21-9-0, and thence to Coconada by water, 309 miles, at 3 pies per ton per mile, Rs. 4-13-3, equals ...	26	6	3
Do. returning, at 5 pies per mile for the water-carriage, ...	29	9	9

Or again :—

One ton from Nagpore to the foot of third barrier, 175 miles, at 3 annas per mile, Rs. 32-13-0, and thence to Coconada, 309 miles, at 3 pies per mile, ...	37	10	3
Do. returning, at 5 pies per mile for the water-carriage, ...	40	13	9

37. Now the carriage by rail to Bombay will have been seen not to exceed Rs. 34 from Hingunghat, and Rs. 33 from Nagpore: hence it is apparent that if the starting point were from Hingunghat there would be nearly an equality of cost between the river and the rail, though there would be a slight difference in favour of the river. But if the starting point were from Nagpore, then there would be a difference altogether in favour of the rail over the river.

38. The conclusion, then, therefrom derivable would be this, that, *firstly*, if the navigation of the Godavery were opened throughout, from Coconada to the Falls near Hingunghat, the difference of cost of carriage to Coconada, either from

Nagpore or Hingunghat, would be immensely in favour of the river over the rail, whether going down or coming up. *Secondly*, that if the navigation were opened up to the foot of third barrier only, then from Hingunghat there would be a slight difference in favour of the river over the rail, both going and returning; but that from Nagpore the difference would be in favour of the rail over the river, both going and returning.

39. I have now to examine the probable effect of the introduction of water-carriage upon the different articles of production.

40. Firstly, in respect to cotton. The crop of this valley has been estimated at 19,361,388 lbs. per annum, of which about one-third used to be exported. The outturn of the present year is estimated at an increase of sixty per cent., and it is expected that the greater part will be exported if the high prices continue. Within the last year the price has doubled; it used to be 40 and 50 rupees per boja of 262 lbs., and now it has risen to 120 rupees. That such an enhancement of price would greatly stimulate production cannot be doubted. But there must apparently be a limit beyond which the culture cannot increase. A considerable portion of the area fit for cotton is nevertheless not grown with cotton, being reserved for other staples necessary to provide food for the people and their cattle, such as wheat, millet, oilseeds, and other articles. Some of these might be superseded by cotton; but the millet is almost indispensable, and cannot be obtained equally good from elsewhere. However, there is, under any circumstances, a large supply of cotton available for exportation either by rail or by the Godavery, if the latter were open; and the question arises, which route would it prefer? Now it could be carried by water, supposing the navigation to be opened to near Hingunghat, for about Rs. 6-15-3 per ton, as will have been already seen. If the navigation were open only to foot of third barrier, then it would go for Rs. 29-3-3 per ton. The present rate for cotton by rail is ten pies per ton per mile if pressed, and sixteen pies if unpressed. In the existing scarcity of presses, unfortunately most of the cotton would be unpressed. The cost per ton from Hingunghat to Bombay would be, pressed, Rs. 29-9-4; unpressed, Rs. 43-15-4. In respect to cost, then, there would be a great difference in favour of the river if the navigation were open to Hingunghat, though none at all for pressed cotton if it were open to the third barrier only. But in another respect the rail would have what might be a decisive advantage over the river in respect of time. For cotton is ready for exportation by March; whereas, at the best, the navigation would not be open till June, or even later. There would thus be a delay of three months. With the rail, of course, there would not be the least delay. At such a time as the present this circumstance would cause the railway to be preferred, notwithstanding the difference of cost. It is probable, also, that for such an article as cotton the rail would be preferred as safer than the boat. And as the article is so valuable, the difference of cost in carriage in favour of the river might not cause it to resort to that route, and to leave the rail. Supposing the value of cotton to be what it is now, then the cost of transit from Hingunghat to Coconada would, if the river were open from that point to the sea, equal 0·7 per cent. on the value of the article; or if open from below the third barrier, then it would equal 2·6 per cent. But if it were carried by rail to Bombay, then the percentage for carriage would be 2·9 on pressed, and 4·3 on unpressed cotton, respectively, on its value. On the whole, I am inclined to think that much of the cotton will, at all events, go by rail, rather than by the river, and I doubt whether this article can be reckoned on confidently as an important part of the future traffic of the Godavery.

41. Oilseeds of all kinds are produced in the Wurda districts; and the linseed is of good quality—better, it is believed, than can be grown in the coast districts. The present yield of these crops may be estimated as below:—

	Maunds.
Linseed	4,00,000
Gingelly	2,00,000

To what extent this production could be increased may be doubtful. But inasmuch as oilseeds and linseed are exported to the coast from perhaps every province in India that possesses communication, there is good ground for hoping that these articles will be exported from the Nagpore country as soon as the communications shall be open. And as the river will be cheaper than the rail these articles would go to the former. It is further to be remembered that oilseeds already form the staple export from Coconada, so that a constantly increasing demand in that quarter may be anticipated.

42. Wheat might, *prima facie*, be regarded as a probable export from Nagpore by the river to Coconada. It grows extremely well in the Nagpore province. If it can be produced cheaply

Of Wheat.

or at a moderate price, it would certainly be so exported in any quantity that could be provided. But the present range of prices is high, and has so continued for now nearly two years, as already explained. The future prospect, then, of exporting this article is as yet doubtful.

Of Rice.

43. Rice would probably not, under any circumstances, be exported from Nagpore, inasmuch as it can be grown more cheaply in the coast districts.

44. Sugar is as yet produced but little in Nagpore, though its production appears to be quite practicable. Attention is now being given to the subject. It is possible that the opening of com-

Of Sugar.

munications will impart a stimulus to this branch of production in Nagpore. In that case sugar may be regarded as a possible export by the river.

45. There being such large herds of cattle and so much pasturage in this country, it may be confidently anticipated that such articles as ghee (clarified butter) and hides would be exported in

Of Ghee and Hides.

large quantities by the river. As already explained, these articles are exported even now, notwithstanding the utter want of communications.

46. Of fibres there is every probability that the valley of the Wurda could produce flax, inasmuch as the linseed plant grows so well there. But it is notoriously more difficult to raise the plant

Of Fibres.

for its fibre than for its seed; and whether the people can be taught to grow the fibre is very doubtful. But the *sun*, or Indian hemp (*Crotalaria juncea*), grows in fair quantities. It would, in all probability, be exported by the river.

47. Iron of a second-rate lateritic character is largely obtained in many parts of the Nagpore province, and is useful for many common purposes, and is conveyed to various places at a considerable

Of Iron.

distance. Some of it might be exported to the eastern districts by the river.

48. There would be some miscellaneous articles, such as dyes, lac, &c., exported. But the best lac in these provinces is produced further north, and goes to Mirzapore. There is, unfortunately, no manufacture or industry of that kind in the Nagpore province which would furnish anything worth exporting.

49. So much for the exports then. The imports may be considered thus:—

50. Much stress has been justly laid by the projectors of the navigation works on the probable increase of the salt trade. Now it is

Probable imports by the river.

Salt.

to be borne in mind that the salt consumed in the Nagpore country proper comes chiefly from Bombay; that consumed in the lower valley of the Wurda, below Chanda, in the

valley of the Godavery, and in Eastern Nagpore (Chutteesgurh), comes from Madras. I have at this moment to examine the effect of the Godavery navigation on the salt trade of Nagpore Proper. This salt is now brought from Bombay by pack bullocks, with much cost and trouble, at 4 or 5 annas per ton per mile. If there be no navigation, it will come by railway at perhaps one anna per ton per mile, or at Rs. 33 per ton for the whole distance. It has been already seen that a ton could come from Coconada to Nagpore for much less than this, if the navigation were opened to Hingunghat. Supposing that the navigation were opened to foot of the third barrier, then it could come up to Hingunghat for somewhat less than the above. But if it went on to Nagpore the cost would then

become somewhat more. It follows, then, that the river, if opened to Hingunghat, would bring salt from the eastern coast to be consumed by the Nagpore people in preference to Bombay salt, as being much cheaper in respect of carriage. But if the navigation extended only to the third barrier, then the eastern coast salt would not go beyond Hingunghat, and a *part* only of the Nagpore country south of Hingunghat would take the eastern coast salt, and the greater part, *i.e.*, that north of Hingunghat, would continue to take the Bombay salt. The average consumption of salt in the country of Nagpore Proper amounts to two lakhs of maunds per annum from Bombay. In the first case, then, eastern coast salt might be substituted for the whole of this. In the latter case it would be substituted only for one-fourth, perhaps. Under these circumstances, however, the navigation of the Godavery, even if partially carried out, would cause a saving in the cost of salt to the consumer of Rs. 60 or £6 per ton in the Nagpore province, that being the probable saving by water-carriage as compared with pack bullocks. That this would lead to increased consumption, and consequently also to some increase of revenue, may be fairly assumed. Whether the river could compete with the railway for carrying salt to Nagpore itself would depend on the point up to which navigation might be carried. The price of salt in Nagpore is high, ranging at Rs. 5½ per maund, or Rs. 154^o or £15-8 per ton; and the duty is also high, there being a local tax of Rs. 1½ per maund, in addition to the tax at Bombay or Madras. A diminution in the cost of carriage down either to railway rates or to boat rates might reduce the price by 60 to 70 per cent. Any reduction in the price of salt will be a boon to the people, and is *therefore* earnestly to be sought for. But too much stress must not be laid on the increase of the revenue; for, while there would be some real increase, owing to increased consumption, yet, in other respects the charge, fiscally speaking, would only be a substitute of Madras salt for Bombay salt, and the gain to Madras revenue would be loss to Bombay revenue. To the local salt tax it would make no difference whether the salt came from Madras or Bombay.

51. From the Cuttack coast cocoanuts are already imported, and with river navigation a large importation from the Masulipatam coast would arise. The same remark applies to brass vessels and other miscellaneous articles. A quantity of tobacco from the river islands in the Delta would also come up for the use of the Madras troops.

52. If the exportation by boats from Nagpore should be considerable, it is probable that among the imports in return would be piece-goods, iron, cutlery, and other European articles. But it is to be borne in mind that these articles, having generally a high value, as compared with bulk, could come almost equally well by railway.

53. Military stores would, under any circumstances, form a main item among the imports. The Nagpore Force and Arsenal are supplied from Masulipatam, on the eastern coast, as already explained. These extensive consignments of stores now find their way from Masulipatam by a circuitous and laborious land route through Hyderabad to Nagpore. These would all be sent by the Godavery if it were navigable: indeed, of late years some consignments have been so sent by the temporary transit agency on the river, partly by land and partly by water. The old land route has always proved very expensive, and it has been ascertained that the conveyance of a ton costs Rs. 138. Now as regards the cost of conveyance of military stores from Masulipatam to Coconada and thence by the river on towards Nagpore the following data may be offered:—

For one ton of stores from Masulipatam to Coconada, freight, ...	Rs.	2	0	0
Expense of embarking and disembarking, ...	"	5	0	0
Coconada to Moonglee, freight at 5 pies a mile, 344 miles ...	"	8	0	0
Cart-hire to Nagpore, 175 miles, at 3 annas per mile ...	"	32	13	0
<hr/>				
Total Rs...47 13 0				

^o The price of salt is Rs. 154 per ton in Nagpore Province. Of that Rs. 73-12 is on account of the Government revenue, including the Madras tax and the Nagpore local tax. This deducted from Rs. 154 leaves Rs. 80-4 as representing the present cost of carriage by pack bullocks. Now even if the Godavery navigation extended to the foot of the third barrier the cost to Chaur'a would be less than Rs. 20 per t n, showing a difference of Rs. 60 in favour of the consumer.

Or if open to Hingunghat :—

Masulipatam to Coconada, as above	...	...	...	...	Rs.	7	0	0
Coconada to Hingunghat, 455 miles, at 5 pies	...	...	...	...	"	11	0	0
Hingunghat to Nagpore, cartage 70 miles, at 3 annas	...	...	...	...	"	13	2	0
Total...						Rs.	31	11 5

being a saving of Rs. 90-3-0 in one case, and Rs. 106-4-7 in the other. When the navigation was first projected it was calculated that the average of stores per annum amounted to 450 tons. In 1857 the amount was 487, and in 1859 1,330. From present inquiries the future average is estimated at 500 tons per annum. Now supposing that about Rs. 100 of carriage were saved on each ton, the probable annual saving will amount to Rs. 50,000 per annum, which saving to the State would indeed be considerable, and would of itself defray a part of the interest on the outlay on works of navigation.

54. After thus comparing the relative advantages of the river and the rail, both as regards imports and exports, I should add that Coconada, the port to which the river leads, would probably be not so highly esteemed by Nagpore merchants as Bombay, the port to which the railway leads. At Coconada the merchants are generally agents of firms in Calcutta or Madras. Some of the Bombay firms have a long-established connection with the Nagpore province, and freights to England are generally more favourable from Bombay than they could be from Coconada.

55. In recapitulation, then, the conclusions to be derived from the foregoing account of Nagpore Proper are, *1st*, that in respect to a part of the cotton, and to articles which are valuable as compared with bulk, or in the despatch of which time might be an object, the river will not be able to compete with the rail; *2nd*, that as regards other articles the water-carriage will surpass the railway; *3rd*, that if the navigation be opened to Hingunghat the river would have a large export traffic in cotton, oilseeds, hemp, ghee (clarified butter), hides, and possibly also in wheat and sugar, and country iron; and an import traffic of salt, cocoanuts, brass vessels, military stores, and European articles; *4th*, that if the navigation were open only up to the foot of the third barrier, then the river would obtain a part only of the above traffic.

56. I do not attempt to give an estimate of the tonnage, because that could only be based on anticipation and conjecture. The only question that can be practically examined now is whether there be a fair hope of a river-traffic springing into existence. It is not possible to measure the future traffic, after a great improvement is made, by the standard of past traffic, which existed before the improvement was thought of. If the general probability of a future traffic be established (as I believe it is in this case), then we may be sure that it will grow in a hundred ways, which we cannot now foresee, and that it will impart a mighty impulse to production, to industry, and to increase of population.

SECTION IV.—COUNTRY OF EASTERN NAGPORE, OR CHUTTEESGURH.

57. Next, as to the bearing of the project on Eastern Nagpore, commonly known as Chutteesgurh. The capital of the district is Raepore. This is a large undulating tract, naturally fertile, partly cultivated, not as yet thickly populated, but still possessing great capability for early improvement, fast increasing in prosperity, and generally esteemed one of the most promising parts of the Nagpore province. It is distant about 180 miles from Nagpore, 160 miles from Sumbulpore on the Mahanuddy, and 250 miles from Sironcha on the Godavery. The tracts surrounding it, on all four sides, are covered either with hill or with forest, or with both. This circumstance, however, which on the one hand isolates it from all neighbouring districts, yet on the other hand causes the supply of rain and moisture to be regular. The tract produces excellent rice and wheat, oilseeds and fibres. Of late years the culture of cotton has been commenced, and has increased so rapidly that already the crop is estimated at 36,750,000 lbs. per annum. It is generally anticipated that as communications are opened the culture of cotton will be indefinitely

HYDERABAD AFFAIRS.

extended. Lac is obtained in quantities from the neighbouring jungle. So superabundant is agricultural produce beyond the demand of consumption on the spot that prices of grain are often three times as cheap in Chutteesgurh as elsewhere, and sometimes the disproportion has even been greater. The excessive cheapness of food has the usual effect on the character of the people, rendering them indolent and improvident; so that there is reason to hope that, if their energy were aroused by adequate inducements, a far greater quantity of produce might be raised by them than at present. And, evidently, this cheapness must afford an extraordinary inducement to exportation if means or opportunities of exporting were presented. There are not yet data for stating the quantity of land under cultivation, or the amount of population. But possibly the cultivated area may amount to 3,200,000 acres, and the population to 1,500,000 souls. Neither can the culturable area be stated; but it must be very great, inasmuch as the entire district may amount to 35,000 square miles, and only a portion is as yet cultivated.

58. Despite its isolation, however, this tract has a considerable trade with Nagpore Proper, sending large quantities of wheat and oilseed, receiving back chiefly bullion. In times of scarcity Chutteesgurh has indeed been a granary to Nagpore.

59. There is also a considerable export trade with Mirzapore and Calcutta, the principal articles consisting of cotton, lac, and ghee (clarified butter); while articles of hardware and Europe piece-goods are imported in return. Cocoanuts in considerable quantities are brought from the Cuttack district, but are for the most part exported again to Nagpore and Bhundara; and salt is supplied exclusively for the use of the people of the province by Bunjarries, who bring it from Ganjam on the eastern coast through the Jyepore territory, and also from Masulipatam by Sironcha and Chinoor. There is a return trade of a miscellaneous description, carried on by the Bunjarries, which at present there are no data available to estimate. The existing trade, as carefully ascertained from the native merchants, may be thus exhibited:—

CHUTTEESGURH.

EXPORTS.				TRADE WITH NAGPORE.			
				Maunds.	Value Rs.	Imports.	Maunds.
Wheat...	...	...	...	300,000	...	European Piece-goods	...
Gram ...	...	...	...	150,000	...	Bullion { Silver ...	...
Rice ...	...	...	...	150,000	...	{ Gold ...	...
Toor ...	...	...	...	10,000	...	Miscellaneous ...	...
Linseed ...	...	...	...	10,000	...		5,000
Oil ...	...	...	...	10,000	...		
Gingelly ...	...	...	...	5,000	...		
Dyes ...	...	...	...	2,000	...		
Cocoanuts, bullock loads	...	...	...	4,000	...		
Miscellaneous ...	...	...	...	5,000	...		
TRADE WITH MIRZAPORE AND CALCUTTA.							
Wheat...	...	...	...	20,000	...	Brass and Copper Vessels	...
Lao ...	...	...	...	20,000	...	European Piece-goods	...
Hemp ...	...	...	...	5,000	...	Miscellaneous...	...
Ghee (clarified butter)	...	...	...	1,200	...		5,000
Coarse Cloth ...	...	...	...		...
Cotton ...	...	...	...		...

TRADE WITH CUTTACK.

| Cocoanuts, bullock loads ... 4,500 ... 1,20,000

TRADE WITH GANJAM.

| Salt ... 75,000 ... 4,00,000

Total Exports, Rs. 17,11,000

Total Imports, Rs. 11,95,000

60. The distance to which the articles to and from Mirzapore and Calcutta have to travel by land is great. A ton of hemp, or a bale of cotton, must go upwards of 450 miles to Mirzapore, and thence by boat to Calcutta, or to Cuttack (but as yet a very rough road), 350 miles, and thence by water to Calcutta.

61. The isolation of Chutteesgurh, however, is being fast remedied by the opening of roads in all directions, among which may be mentioned the roads to Jubbulpore in the north and to Nagpore in the west. The natural outlet for the district is, to the east, by the Mahanuddy valley, and a road is being made to connect it with that river, at a

point near Sonopore, distant 180 miles from Raepore. From that point the river has been represented by the local authorities to be navigable for small boats in the dry season, and for larger boats in the rainy season.

62. Whether the Mahanuddy will prove conveniently navigable for a large traffic is a question on which I would defer giving an opinion until I shall have visited that river. Probably (and according to latest accounts) the dry season navigation is bad or defective. But there seems no reason to doubt that navigation can be managed quite well during the rains. From Sonopore, which is at present considered the head of the navigable portion, the distance to the coast is about 200 miles; and from Sumbulpore, the capital of the upper valley, 250 miles. The total distance, then, from Raepore, the capital of Chutteesgurh, to the coast by this route would be 400 miles. This gives as regards Chutteesgurh a great advantage to the Mahanuddy route over that by the Godavery. For the nearest point on the Godavery, Sironcha, is distant 250 miles from Raepore; and the distance from Sironcha to the sea would be 266 miles, giving a total of 516 miles. Sooner or later, then, it is to be presumed that much of the surplus produce of Chutteesgurh will be attracted to the valley of the Mahanuddy.

63. If, however, the Mahanuddy route had not been undertaken, the Godavery project might have proved of great importance to the Chutteesgurh district. It was at one time said, Let the Godavery route be once opened and Chutteesgurh will become a garden. This importance will probably be reduced by the Mahanuddy project. Still it might be anticipated that a portion of the Chutteesgurh produce might go to the Godavery. There now exists a track from Raepore to Sironcha, frequented at certain seasons by parties of Bunjarra traders, with their large droves of laden bullocks. These men now carry the products of Chutteesgurh to the districts beyond the Godavery, and even to the coast districts, an extreme distance of perhaps 550 miles. It is now proposed to improve this track, and ultimately to divert it as it approaches the Godavery to a point north of Sironcha and at the foot of the third barrier. This point would be less than 250 miles from Raepore, and not more than 150 miles from the southern part of the Chutteesgurh district. If the river be opened at all, it must be so up to the foot of the third barrier, from which point navigation to the sea-coast, 309 miles, will be clear. It may be supposed, then, that while the surplus produce of the tracts north and east of Raepore would go to the Mahanuddy, the surplus produce of the tracts west and south of Raepore would go to the Godavery. But even then, of the two routes that of the Mahanuddy might attract more traffic than that of the Godavery; for, among other things, the road to the Mahanuddy will be well made, while it is hardly hoped that the road from Chutteesgurh to the Godavery will be properly made within this generation. At the best it will be but opened.

64. Of the articles exportable from Chutteesgurh by the Godavery the principal would be cotton, oilseeds, fibres, ghee (clarified butter), coarse cloth, lac. These articles would not have so long a land route as they have now, going by Mirzapore or Cuttack. In return for these, there would come from the eastern coast European goods, brass vessels, cocoanuts, and other miscellaneous articles, and lastly salt. At present the salt consumed in this district comes from Ganjam on pack bullocks by a wild and hilly route over a distance of about 360 miles. The superior safety and facility of the Godavery route would cause the salt to come by that way. But it is possible, again, that the opening of the Mahanuddy route might cause some Bengal salt from Cutch to be imported into Chutteesgurh. In either case there would be a reduction in the price of salt to the people.

SECTION V.—THE VALLEY OF THE GODAVERY ITSELF.

65. Before entering upon the valley of the Godavery I must allude briefly to the Bustar country. This is a Native State under the political control of British authority, and a dependency of

Prospects of future trade
in that direction.

The Bustar country.

Nagpore, in the centre of which province it is situate. Formerly it was almost unknown and uncared for. Of late years, however, it has been occasionally visited by British officials from Nagpore and recently a full report and map of the territory have been prepared by Captain Glasfurd, under the direction of this Administration. It lies immediately to the north of the valley of the Godavery. Its area is very great, and has been estimated at as high as 1,300 square miles. It is hilly, for the most part covered with forest and jungle, everywhere wild, and in some parts even barbarous. Its population and its cultivation are very scanty. The population is believed not to exceed 200,000 souls; its revenues may amount to a lakh of rupees per annum. It has some valuable forests, which will be alluded to hereafter, and one route for traders from Chutteesgurh, which has been already alluded to. It produces the ordinary cereals, and could of course produce much more. It will improve as its communications with Chutteesgurh on the north and the Godavery on the south shall be opened. But some time must elapse before this territory could contribute any important quota to the general trade.

66. I now come to particularize somewhat the extensive and peculiar country which may be called the valley of the Godavery and Pranheeta. This may be considered to commence from the confluence of the Wynegunga. The lower valley of the Wynegunga near its junction is fairly cultivated, chiefly with rice, and has numerous tanks. It is at certain seasons, however, even above the average of insalubrity in an unhealthy country. In this valley also, near the foot of a hill named Khandeshwur, is situate what is considered by well-informed persons the most promising iron tract in the Nagpore province. The ore is considered by the Reverend Mr. Hislop, who is a good judge in such matters, to be of the richest description. It has long been smelted with charcoal from the surrounding jungles; and, despite imperfection of manufacture, quantities of iron are produced, and carried by bullocks to great distances. The jungle, if properly conserved, would furnish fuel enough for works of magnitude; a flux can also be procured from the banks of the Pranheeta. The existing furnaces are situate at several villages—Dewulgaon, and Lohara, and others near the Wynegunga, and distant about 70 miles from Dewulmurree, at the foot of the third barrier. Here, then, is a possible field for European enterprise.

67. On the left bank of the Wynegunga near its junction commences the civil district of the Godavery, which extends all down the left bank of the river down to the Eastern Ghats, its head-quarters being at Sironcha. I will first trace the practical points in the topography on this bank before touching on the right (or the Nizam's) bank.

68. At the junction, then, there is situate the British territory of Aheree, remarkable for its teak forests, of great height and girth, which are still preserved, and are the best of those that have survived the wasteful expenditure of late years. The advantage of the proximity of these to the Godavery is obvious. The hills, clothed with various kinds of useful forest, stretch down to the river bank right opposite the third or great barrier. For some distance the hills continue fringing the river. At one point they present a striking and beautiful aspect. Right from the river's bank there rises the teak forest, clothing the hillside, and exhibiting a continuous mass of yellow blossom. Above the forest, which extends up to a height of two or three hundred feet, there again abruptly rises the red sandstone, standing up over the forest like a vast wall of masonry. Here, however, the teak is of a second-rate character, and, though useful for many purposes, does not attain that size which is suitable for first-class structures, and which the Forest Department delight to see. In many parts of these hills there is iron ore of second-rate quality but in considerable abundance. Nearer Sironcha there open out valleys where the hills on either side are covered with second-rate teak, and the lowland, with its rich black soil, is partially cultivated and greatly improveable. At Sironcha itself there is an old fort overhanging the river, and built by a former officer of the Nizam's Government.

69. Sironcha is politically in an advantageous situation, commanding both the Godavery and Pranheeta rivers up and down, jutting forward somewhat, and facing the Nizam's territory. While on the one hand it is suited to be the civil head-quarters of the Godavery, on the other hand it is not so far distant from Nagpore as to be cut off from communication. It is 115 miles from Chanda, whence there is regular communication with Nagpore, 100 miles further on. The total distance of Sironcha from Nagpore, therefore, is 215 miles. The village of Sironcha was nothing but a few huts. Bazars are being laid out, and shops are gradually being taken up. But at present there is a great deficiency of population. The station itself is well placed on a sandy and rocky eminence. There is jungle at the back of it, which has caused sickness, but it is now being cleared. This done, the station should prove healthy. A large tank is being constructed in the neighbourhood. On one side there is a fine valley for cultivation. On the other sides the country is jungly. Near here is the hill of Sirkonda, about 1,200 feet high, where it is proposed to send convalescents in the fever season for change of air. At Sironcha itself there is a fine reach of the river to be seen. From any of the surrounding hills the prospect is notable. There are three rivers visible, the Pranheeta, the Godavery Proper, and the Indrawutty, flowing through tracts fairly endowed by Nature, but much neglected by man. On the left or British bank the country is more hilly, more jungly, and worse cultivated. On the right or Nizam's bank it is more open and better cultivated, and at the confluence there stretch out fine tongues of cultivated land. On one of these there is the well-known Kaleshwur, with its temples sacred to the Godavery.

The station of Sironcha.
The confluence of the Godavery proper and the Pranheeta.

70. Below Sironcha the country becomes jungly for miles, excepting only a border of cultivation on the bank, till it nears the Indrawutty, where cultivation reappears. At the Indrawutty itself steep hills overhang the river. At the back of these, however, it is thought that irrigation from the Indrawutty may be conducted. It will be remembered that near the junction of the Indrawutty there occurs the second or middle of the three barriers. Crossing the Indrawutty, we come to a tract called Bhopalputnum, belonging to the Bustar State, and but slightly under British control. Though enjoying a fine situation, it is wild and poorly cultivated. Densely wooded hills reach down to the bank of the river. After Bhopalputnum there come the taluquas or sub-divisions of Noogoor, Albaka and Cherla, all British. They may all be described as consisting of a narrow strip lying between the foot of a long range of low hills and the river. The strip is but slightly cultivated and chiefly covered with jungle. The low hills themselves are in parts fine, with cascades falling over precipices of red sandstone 200 or 300 feet high. Behind them, again, in the Bustar territory, there rises another range, apparently 3,000 feet high, and known to possess fine teak forests, of which the trees have for years been felled and floated down by the Tal to the Godavery. In these hills there is a possible hope of a sanatorium being discovered. If any such were discovered it would be a great boon to our numerous sick employés. The Cherla sub-division is considered to be the worst and most neglected part of the British side of the river; it is here that the confluence of the Tal occurs. The country there, though more open and naturally rich, is still put poorly cultivated. A little below this is Parneshala, a place which has been sacred for hundreds of years, and where the wharf for the teak timber (floated down by the Tal) is situate. I saw there quantities of undersized logs, cut in days before conservancy rules had been introduced.

The junction of the Indrawutty River.

The junction of the Tal River.

71. A few miles below this is Doomagoodium, at the anicut which is to be the head of the canal running past the first or lesser barrier. At Doomagoodium are the head-quarters of the Godavery Navigation Department. The station site has been selected solely from its proximity to the anicut. The site itself is not a healthy one, and will require some well-considered drainage. About 15 miles below Doomagoodium

The station of Doomagoodium and town of Bhudrachellum.

is Bhudrachellum, or hill of the saint Bhudra. It has a number of Hindoo temples of considerable size, much venerated, not only by Hindoos of all kinds, but also by the Gonds, for hundreds of miles round. It is the most important—indeed the only important—place on the British side of the Godavery. It has a paved street with masonry houses, chiefly belonging to priests and their dependants. Its population is not above two thousand souls. It is the only place on our side of the river with any pretension to be called a town or bazaar. Below Bhudrachellum the country, though diversified by hills, is comparatively open, with a considerable fringe of cultivation along the bank. The general capabilities of the land appear good, though even here in the interior all is jungle. There is a project for conducting a lesser canal in connexion with the barrier works, to irrigate the lands on the river bank for a distance of 40 miles, to a point near the junction of the Sibbree. The project is in every way a promising one, the levels are suitable, and the ground highly favourable. The tract in question, too, is below the first barrier, and is comparatively near to the coast. It would have greater advantages than any other part of the Godavery district in respect to navigation and to the procuring of labour. The terminus of the canal would be distant 80 miles from Rajahmundry, the head-quarters of the Delta district, which is highly populated, and abounding in boats. From there the immigration of labourers and husbandmen to Bhudrachellum would be easy, and hundreds of boats could make short trips within the navigating season up and down, conveying goods and produce to and from Bhudrachellum. Under any circumstances the boat navigation in this section of the river would be easier than elsewhere, both by reason of the greater volume of water and the shorter distance.

72. About 25 miles below Bhudrachellum the Sibbree river joins the Godavery. Near this point there are hills jutting forward and determining the course of the two rivers. Behind these, again, there are hills, in what is known as the Byjee jurisdiction, within the Bustar State. These latter hills abound in first class teak forests, of which the timber is floated down the Sibbree. From here the long range of the eastern ghats comes clearly into view, and bounds the entire horizon. Across the Sibbree there is the Rakapilly tract, British territory, which extends to the foot of the eastern ghats, and to the boundary of Jeypore, an independent State under control of Madras. Rakapilly is therefore the extreme frontier jurisdiction of the Central Provinces. The place can be discovered from afar, by reason of a lofty pyramidal hill, named Korkonda, which stands up in an almost perfect cone, some 700 feet high. It is much venerated, and is indeed the very centre of superstition to the ignorant people around. The Rakapilly lands are comparatively open, and fairly cultivated. In many places the cultivation extends continuously along the bank of the Sibbree. To the eye, long accustomed to miles and miles of river's edge covered with forests and jungle, it is refreshing to see the banks of the Sibbree trimmed with the partitions of fields, and the lines of cocoanut trees. On the whole, Rakapilly is the best of the sub-divisions on the British side of the Godavery, and has the most advantages in respect to immigration and navigation. For 25 miles above its junction both sides of the Sibbree are British, and have a tolerably broad expanse of land, now partially cultivated, and capable hereafter of indefinite improvement.

73. At a few miles below the junction of the Sibbree the hills cluster more and more thick around the Godavery, till the spurs of the eastern ghats close the river in, and at length the mouth of the great gorge is reached. It is here that the river cuts through the very highest part of the range, and is narrowed between hills rising straight from the water's edge to a height on either side of 2,000 and 2,500 feet. At the head of the gorge the extreme limit of the Upper Godavery district and of the Central Provinces is reached. Near this spot one of the hills, named Pakhonda, has been thought eligible for a sanatorium, its height being from 2,500 to 3,000 feet. For about 6 miles, that is from Koydtha above the gorge to Palaverum below it, the river flows between hills. Above the hills its breadth is in some

The junction of the
river Sibbree.

The Eastern Ghat moun-
tains, and the Godavery
Delta.

places about two miles, and between them about 300 yards. In the latter section the depth is very great. Below the hills the river spreads out into a wide sheet of water in the rainy season, and of sand in other seasons, for a distance of 28 miles, to Rajahmundry, and after that the delta commences. From the lower or eastern face of the ghats to the sea-coast there is a broad tract highly cultivated, thickly populated, well irrigated, and abounding in water carriage. That district belongs to the Madras Presidency, and is the great source of supply in every way to the Upper Godavery country.

74. Such, in brief, are the main topographical features of the British district of the Upper Godavery, extending along the left bank of that river. It was ceded to the British Government by the Nizam, in virtue of certain territorial arrangements made in 1860. Since the beginning of 1861 it has been under British rule. I shall now give a few approximate statistics and facts, which will unfortunately show, what may have been already surmised, that the district is but little cultivated and very thinly populated. It is indeed a continuous forest, slightly sprinkled with villages and patches of cultivation.

75. As before said, then, the district is a long narrow strip on the riverside. Its extreme length or river frontage may be stated at 224 miles; its breadth of course varies, but may be stated on the average to be about 16 miles. The river frontage of the several talooks or sub-divisions may be thus given:—

Talook of	Ahireo	Miles.
Sironcha	40
Bhopalputnum	56
Noogoor	15
Albaka	30
Cherla	10
Bhudrachellum	24
Rakapilly	40
								35
Total...								250

76. The area stated in square miles is considerable, as may be seen thus:—

Talook of	Ahireo	Square Miles.
Sironcha	1,200
Bhopalputnum	720
Noogoor	705
Albaka	160
Cherla	40
Bhudrachellum	180
Rakapilly	450
								450
Total...								3,905

But how little of this large area is cultivated, and what proportion further is culturable, may be seen from the following calculation made by the District Officer for the Summary Settlement:—

Percentage of cultivated, culturable, and unculturable area.

	CULTIVATED.	CULTURABLE.	UNCULTURABLE.
Sironcha	... 5 per cent.	{ 1st sort 20 per cent. 2nd do. 35 do.	{ 40 per cent.
Noogoor	... 3 "	{ 1st do. 20 do. 2nd do. 40 do.	37 do.
Albaka	... } 2 "	{ 1st do. 20 do. 2nd do. 28 do.	50 do.
Cherla	... }	{ 1st do. 20 do. 2nd do. 35 do.	40 do.
Bhudrachellum	5 "	{ 1st do. 13 do. 2nd do. 30 do.	50 do.
Rakapilly	... 7 "		

Thus it will be observed that from 2 to 7 per cent. only is cultivated; about 50 per cent. or a little more is culturable waste; and about half the area unculturable, being hill rock and the like.

77. A similar result may be seen by an acreage table inserted here, as obtained from the District Officer. So far as extent of land is concerned, a fine field is open for agricultural enterprise, inasmuch as it will be seen that, while 60,608 acres or about 95 square miles only are as yet cultivated, there are

HYDERABAD AFFAIRS.

estimated to be culturable and available 261,600 acres of the better sort, and 428,854 of the second sort, in all 670,454 acres. If in future times the whole of this were to be cultivated, the agricultural production of the country would be increased by 30 or 40 lakhs per annum, the worth of produce by the lowest calculation. If only half were cultivated there would still be an addition of 15 or 20 lakhs a year to the gross produce.

ACREAGE TABLE.

	Acres cultivated.	CULTURABLE.		Unculturable.
		1st Sort.	2nd Sort.	
Sironcha .	23,040	92,160	161,280	184,320
Noogoor .	3,072	20,480	40,960	39,936
Albaka .	512	5,120	7,168	12,800
Cherla .	2,304	23,040	32,256	57,600
Bhudrachel	14,400	57,600	100,800	115,200
Rakapilly..	17,280	43,200	86,400	144,000
Acres...	60,608	241,600	428,864	553,856
Square Mileg. about...	95	378	670	865

The Population and Revenue.

78. But the extreme scantiness of the population as at present may be thus seen :—

Talooks.	Villages.				Population, Souls.
Sironcha	64	8,000
Noogoor	34	2,000
Albaka	16	500
Cherla	37	2,200
Bhudrachellum...	100	8,150
Rakapilly	137	12,000
TOTAL	388				32,850

Those marked as above ° have been ascertained by Census.

79. The existing resident population, then, is under 35,000 souls. This, of course, is exclusive of labourers on the works, who often amount to several thousands. Over so large a tract the relative proportions of the several castes, of course, vary ; but it may be said that the Brahmins are from 2 to 8 per cent. ; the Rajpoots and Mahomedans very rare ; the Teloo goo people, immigrants from the coast, from 40 to 50 per cent. ; the Gonds from 30 to 40 per cent.

80. The revenues now derived may be thus exhibited :—

	Rs.
Sironcha	4,500
Noogoor	3,000
Albaka	1,000
Cherla	2,500
Bhudrachellum	6,000
Rakapilly	12,000

TOTAL ...Rs. 29,000 per annum.

81. The cultivated area, now so deficient, was at one period larger than at

The Tanks.
century or so old,
Kotapilly.
Mudekoonta, near Godavery junction.
Asuralee.
Horda.
Toomnoor.
Noogoor.
Albaka.
Cherla.
Sooret.
Tirparee Panta.
Rakapilly.

present, and the country more prosperous. In the jungle there are remains of the earthwork of tanks supposed to be a and now quite overgrown with brushwood. There are also remains of tanks in many villages, which may now be improved. In the margin I give the names of some of the principal places where improvable tanks exist, to illustrate what a scope there is for improvement in this way. Advances in cash are now being made to the people, to enable them to improve their tanks. It appears that future irrigation must be chiefly, if not entirely, from tanks. Wells are only to be found at a few places.

82. One cause of the deterioration of the tract has been its unfortunate situation under the Nizam's Government before the cession. It was Former troubles of the country. separated from the Deccan by the river, and being the only tract

belonging to the Nizam across the river, and being one extreme outlying portion it was much neglected. The proprietorship and management of the land belonged to petty Chiefs, who resided on the opposite or Deccan side of the river, and who never resorted to the trans-Godavery tract, except when they had to take refuge there by reason of any trouble in their own country. The petty Chiefs, too, of the neighbouring Bustar State, subordinate to Nagpore, were more lawless formerly than they are now. Plunderings, of a character to depopulate a country already thinly populated, occurred up to a recent period, immediately before the introduction of British rule. I may mention a few instances. In May 1860 the Bhopalputnum Chief attacked the Noogoor sub-division, and plundered six villages. Early in the same year one of the Chiefs under Bustar robbed a caravan of traders and carried off 2,500 rupees' worth of their property. In the same year the people of the Cherla and Bhudrachellum sub-divisions went on, for some time, plundering each other's villages. In 1859 the Cherla Chief plundered two villages in the Bustar country; whereon the Bustar people retaliated, by plundering six villages in the Noogoor sub-division. In the same year a party from the Bustar country entered the Bhudrachellum sub-division, and forcibly drove off all the cattle. Again, the Cherla Chief attacked a village near Doomagoodum, tortured the headman, and took off 2,000 rupees' worth of jewels. These instances might be multiplied; but enough has been said to show the lawless character of the country. These troubles have, of course, ceased since the introduction of British rule in 1861.

83. When the Godavery was first visited by British officers, much was said, no doubt correctly, regarding the many oppressions and vexations to the people, and hindrances to trade, which existed on both banks of the river under the Nizam's Government. Whatever nominal imposts there ever were upon the river transit have now been abolished. But although a variety of imposts may have affected inland trade they could not have affected the boat-traffic on the river. For boat-traffic does not appear ever to have existed, and probably will not come into existence until the navigation shall be really opened. The traffic which exists is that of timber floated down in single logs or in rafts.

84. The condition of landed tenures has been adverse to agricultural improvement. In four² out of the six sub-divisions there has prevailed a peculiar custom of changing periodically the possession of the land. The whole land of the four sub-divisions is supposed to form part of a large estate, of which the bulk is situated on the opposite, or Nizam's, side of the river. The proprietors are descended from a common ancestor; they are now four in number. A family dispute occurring some two generations ago, it was decided to divide the whole estate into shares, on the condition that the shares should be redistributed, and the entire shares change hands, at intervals of eight years. This arrangement was carried out at the regular intervals for nearly a century, until a fresh dispute arose in 1848, when one of these sharers refused to accept the exchange. Since then effect has not actually been given to the principle, which is still, however, maintained and acknowledged by the parties. After the lapse of fourteen years without an exchange, sufficient reason may probably be found to prevent any such again occurring, at least on the British side of the river. But the past effects of the system are described by the local authorities, doubtless with truth, to have been very bad. It is reported that each sharer, as the close of his tenure approached, on the one hand extracted as much as he could from the property, reckless of the subsequent deterioration that would follow; while, on the other hand, he neglected every work that could improve or maintain the condition of the lands. Thus it was that tanks were allowed to fall into disrepair, or were only patched up when the expenditure of one year was certain to be realized in the next; that no wells were made, no fruit trees planted; and that the very dwellings of the landlords were left to decay.

85. In the remaining two sub-divisions, Bhudrachellum and Rakapilly, the land belongs to the family of the Ashwa Rao Rajas, who hold large estates in the Nizam's dominions. First, the estates on both sides the river suffered from fends

between two branches of the family ; then the present holders (now represented by a Ranees) fell deeply into debt with bankers at Hyderabad ; then mortgages, and the disputes consequent thereon, followed. Even now a question is pending as to whether the mortgage shall be foreclosed on the British side of the river, and the villages made over to the banker. The two parties accuse each other of injuring the villages. A satisfactory solution of the question seems difficult. In the Rakapilly sub-division, subordinate to Bhudrachellum, the Ranees has managers, some of them possessing a quasi-hereditary status. Of these the principal is a man whose former career has been marked by treachery and murder. Another was quite recently removed from his position for having been the author and promoter of a serious gang-robbery.

86. On making the Summary Settlement throughout the Godavery district the Deputy Commissioner found the cultivation in the lowest stage of inefficiency and neglect, and the people poor and oppressed. To avoid exaction, the ryots had neglected the cultivation near the villages and in open spots, and had worked out fresh and inferior fields in the interior of the jungle, where they could more easily conceal the cultivation.

87. A new settlement on regular inquiry is now commencing, and doubtless a beneficiary interest in the land will be secured to the ryot or tenant. But it will be difficult so to arrange as to save the estates from the evil of absentee landlords. These latter will probably continue to reside on the opposite, or the Nizam's, side of the river, as they have their homes and families and principal property there, and will leave their interests on the British side of the river to be managed by agents.

88. The present products are wheat (in places only) ; cotton in very small quantities ; millet (jowaree) of fair quality ; rice good ; oilseeds inferior ; castor oil ; pulses ; a few common vegetables ; plantain trees, coarse ; limes and oranges, small. In one village only is sugar-cane produced. Neither the cocoanut tree nor the date palm are to be found ; but the palmyra or toddy palm and the mohwa tree are both in fair abundance ; they are both used for liquor, to which the people are much addicted. The staples which supply the food of the people are millet and rice. They do eat meat to a certain extent, such as mutton and poultry. The Gonds eat the flesh of the buffalo, and even of the cow, and many of them live on game. The buffaloes are large and fat ; the cows, though good, are of a small breed ; the bullocks are small, but hardy ; the sheep are also small, but good ; the goats are good also. The pasturage is everywhere excellent, and the cattle are in the best possible condition. As might be expected, ghee (clarified butter), hides, and wool are abundant. All three articles are largely exported to the Deccan and elsewhere by land as yet. Wax and galls are produced, but lac is not (as might have been otherwise supposed) produced in these jungles.

89. The culturable soils may be thus classified :—1st, black, abundant on river bank, but comparatively rare in the interior : retaining submoisture, and good for cotton ; 2nd, alluvial deposit of a brown colour, excellent soil for most kinds of produce ; 3rd, sandy, when fairly flooded good for rice, being a light soil containing proportions of sand and of vegetable loam ; 4th, red clayish, inferior to the three preceding. The unculturable land consists of rocks, of beds of streams, of rank brushwood growing on gravelly soil. The culturable and unculturable soil are not generally found in large, continuous, or unbroken areas. The cotton grounds, or the rice grounds, are not met with in fine expanses, but rather in patches or hollows interspersed among the unculturable wastes and jungles, or in narrow strips along particular lines, or in small valleys and basins among the hills and undulations of the country.

90. As might be expected, from the prevalence of hills and of interminable forests, the fall of rain is copious every season, and drought is almost unknown. The climate is not so bad as may have sometimes been supposed. There is great heat for perhaps three months, but the rest of the year is comparatively cool ; in winter there are chilly mists rising up

from the river. There is not much swamp to cause bad malaria. The rainy season is the healthiest in the year ; while the rain is frequent, and the ground and vegetation moist, the jungles are visited in safety. But in the autumn, and in the early winter, fever is prevalent, probably from the exhalations from the fallen and decaying leaves. Few strangers, whether Europeans or natives of India, escape mild fever under any circumstances ; but exposure in the jungles from September to January will inevitably cause sickness, and if persisted in would cause death. If round any station, settlement or habitation jungle is permitted to grow thick, the dwellers will have bad fever. If the jungle be cleared they have a fair natural chance of escape from serious malady ; for there is nothing insalubrious in the character of the soil. On the contrary, there is everywhere to be found gravelly or sandy ground, with fair natural drainage. The people of the country, though not large in stature, are not otherwise than strong, and are not peculiarly stricken with disease. Large bodies of workmen and labourers have, at different times, been maintained at various points on the river in good health. They have been sometimes attacked by sickness, but that is always incidental to large bodies of men employed on outdoor work under vicissitudes of season.

91. The Ahiree teak forests have been already mentioned in para. 68. They are estimated to contain 15,000 serviceable logs. The other teak forests of the Godavery are situated chiefly in the Bustar territories, beyond our regular civil jurisdiction. The principal are those of the Kotapilly sub-division, from which the timber is floated down the river Tal to the Godavery ; and those of the Byjee and Sookkoom sub-divisions, also of the Mukanagiri sub-divisions of Jeypore, from all which the timber is floated down the Sibbree. These *have* been noble forests, but are now no longer so, owing to unchecked expenditure. These are the forests which the Native Government leased out to contractors, without any stipulation regarding conservancy, and from which the great cantonment of Secunderabad, and buildings of all kinds at Hyderabad, have been built for many years. As the teak logs float extremely well, the Godavery has always been largely made use of to convey them towards the coast. In 1860-61 no less than 25,000 logs were thus floated down. And this traffic still continues, though under better regulations than heretofore. A large portion of the timber cut in former years has consisted of under-sized logs, obtained from trees felled before arriving at mature growth. This reckless destruction, for temporary advantage, of trees which if spared might double in value has seriously diminished the timber resources of the Godavery. Vigorous measures are now taken for conservation. Under-sized logs cut after a certain date are stopped on the river ; and the Bustar authorities are urged, for their own sake as well as for the common weal, to coöperate in the conservancy. Thus these first class forests may have a chance of reproducing themselves ; and the next generation, enjoying the fruit of our present labours, may see a never-failing supply of first-rate teak timber floating down the great river. First-class teak forests were reported by Captain Stuart, the Superintendent of Forests, to exist in the higher hills near the Indrawutty. But it is doubtful whether this timber will be made available, on account of its distance from the Indrawutty, and of the difficult, if not impracticable, character of the river itself. But although there are no first-class teak forests in the immediate valley of the Godavery itself, there are yet abundant forests of second-rate and third-rate teak, of smaller dimensions, producing beams of 15 or 20 feet, and lesser beams of various sizes, which timber can be used for house-building, boat-building, planking, and a hundred useful purposes. These are all properly guarded, and expended gradually and economically. It should further be noted that, among its many uses, the teak supplies rafts to carry other valuable woods, which will not float of themselves.

92. Of other trees, the *Sâl* (*Shorea robusta*) is not found in the valley of the Godavery. But many valuable kinds of trees are everywhere in rich abundance. The *Saj* (*Pentaptera tomentosa*) and *Eyne* (*Terminalia*) are very fine everywhere. The *Byjee Sâl* (*Pterocarpus marsupium*), the *Eromuldee* (*Pentaptera Arjuna*), the *Unjun* (*Hardwickia binata*), the *Shêshum* (Blackwood), the Ebony. Most of these would be exported in great quantities by the river on teakwood rafts.

93. The future hopes of agricultural wealth in the Godavery district depends on the production of sugar, indigo, linseed, cotton, and castor oil. The people will continue to be well fed on rice and millet ; but if they are to rise in the social scale they will cultivate the above articles for exportation. On the opposite or Nizam's side of the river the sugarcane is grown by means of irrigation. There is every reason to hope that, with the improvement of tanks, it will also be produced on the British side. Sugar can also be produced from the palmyra or toddy palm. There is a great demand for it in the coast districts. The large sugar factories near Rajahmundry can hardly obtain a sufficiency of raw material. The practicability of growing indigo requires to be tested by further experiment. That article is also in great demand for the factories on the eastern coast. Linseed is believed by the local officers to be producible to any extent. Castor oil is already produced considerably. The oil-seeds form one of the staple exports from Coconada. Cotton can certainly be produced wherever the black soil is found, which will chiefly be on the river bank. It is most desirable to test the capabilities of the soil for the production of these articles at different points on the river bank ; and I will endeavour to establish some experimental farms or gardens for this purpose.

94. In the extension and improvement of agriculture on the British side of the river the great difficulty will, of course, be the utter deficiency of labour, and, as already explained, the population is most scanty. The main hope, then, must be from immigration. Now there is no chance of immigration from Nagpore in the north, where the people dislike the name of the southern district ; nor from the east, where the Bustar people are not only scarce, but uncivilized. There might be immigration from the west, the Nizam's side ; but the Native Government generally prevent anything of the kind, and the landlords, who, owning land on the British side of the river, have yet their principal estates on the Nizam's side, are not likely to encourage it. Labourers are, however, sometimes procured from there, and many of such might be induced to settle on the land. There remains immigration from the south of which great hopes may reasonably be entertained. To the south, there is the Delta district of the Godavery, one of the finest and most populous districts in India. This great district already supplies emigrants for Burmah and the Mauritius. It surely will do so for the Upper Godavery district. Already the base line of communication for all operations on the Godavery is with the Delta. It is from thence that all resources are drawn, and from thence that the majority of the workmen and labourers are obtained. Many thousands have, at different times, come from there ; and thousands from there are at this moment in employ. Of these, many are drawn from the agricultural class and thus might be induced to settle on lands near the works, and to send for their relations and families. If once the tide of immigration were to set in hither it might rapidly increase. No such colonization has yet, however, taken place. A short time ago I offered to lease lands, under the usual terms of settlement, to workmen willing to colonize land. The Waste Land Rules will now enable me to offer them a better tenure. It is indeed difficult to foresee exactly how people will come, and where they will come from ; but experience seems to show that somehow they *will* spring up, if means of raising and of exporting produce are cheaply and simultaneously provided.

95. There is hope that European and native capitalists will take up grants of waste land, which can be obtained (as it is believed) on a perfect tenure at almost any point on the British side of the Godavery. By the Waste Land Rules, as now sanctioned by the Supreme Government for two years, grants up to 5,000 acres each may be obtained in absolute proprietorship, and free of land revenue, for eight annas per acre,

96. I will now sketch briefly the right or Nizam's bank of the Godavery, commencing at Seerpoor near the 3rd or Upper Barrier. Seerpoor is a small town where some of the Nizam's district officials reside. The country around it is partially cultivated. Near the Barrier there arises a group of hills clothed with thick and interminable forest, and facing the Barrier itself. At the foot of these there is a village (Koutarum) which has extensive remains of masonry tanks, and groves, and must formerly have been a

flourishing place, though now much reduced. Below the Barrier the country continues jungly, except near the banks of the Bibree, a stream which joins the Godavery. This tract is famous for its flocks of sheep. Below the Bibree the country becomes more open, approaching the valley of the Godavery Proper, and its junction with the Pranheeta. Both banks of the Godavery Proper are fairly cultivated. At the junction there is Kaleshwur, a large village, and a resort for pilgrims. About 20 miles above the junction is situate the fort and town of Chinoor: a little above that the Godavery Proper is joined by its feeder the Munair, and a little above that again is situate the town of Muntanee. The country about here is diversified by hills, but it is fairly cultivated. Returning to the bank of the Godavery after its junction with the Pranheeta we still find the country cultivated, till Mahadeopoor is reached, another town and fort with some fine cultivation round it. As the 2nd Barrier is approached the country becomes hilly and jungly; the forest in that quarter is dense. Below the 2nd Barrier, again, the country becomes more open and cultivated as the towns of Nagaram and Mungumpet are reached. These are respectable towns, with good cultivation in their neighbourhood, and both near the river. Mungumpet has suffered at times from incursions of Rohillas. Further down the river there stands a remarkable hill called Rootun

Towns near the confluence of the Godavery and Pranheeta.

Goota, or Hill of the Car (Juggurnauth car), a sacred place resorted to by pilgrims. It is opposite to Doomagoodium, the navigation head-quarters. Below this again the country becomes more cultivated, and towns and villages more frequent. This indeed forms a part of that great tank region belonging to Wurungul, the capital of the ancient and celebrated Hindoo kingdom of Telungana. It must have been once rich and populous, abounding in tanks and such like works of agricultural utility. It is still quite the finest part of the Godavery Valley, and extends to the foot of the Eastern Ghats, where the valley terminates. To convey an idea of the extent to which irrigation is or may be practicable in this part of the valley (if inducement by means of exportation shall be offered), I subjoin the names of some of the principal tanks, all within a short distance of the Godavery:—

The Rootun Goota Hill.

Ramajunrum tank is about 5 miles in circumference.
Neelpauk tank, 8 miles in circumference.
Mulloor has two tanks, in each of which about 300 acres are covered with water.
The *Mullehpilly* Tank is about 4 miles in circumference.

The Tank District.

There are also fine tanks at *Paloonsha*, *Ashwa*, *Raopet*, *Tatkoor*, *Kooknoor*, *Kondapilly*, *Kewak*.

97. The country on the right or Nizam's side of the Godavery, as above sketched, is divided into three administrative divisions, known

Administrative Division.

as I. Seerpoor, including the tract of that name near the 3rd Barrier; II. the Yelma Zemindaree, including the bank between the 3rd and 2nd Barriers, with the towns of Chinoor, Muntanee and Mahadeopore; III. Hussunabad Shunkurgiri Talook, including the country below the 2nd and past the 1st Barrier to the Eastern Ghats, and including also the towns of Nagaram and Mungumpet. The 1st Division is not in any way connected with the lands on the British side. The Canal and Tramway of the 3rd Barrier will, however, pass through its lands. The 2nd Division is, as will have been already seen, intimately connected with Sironcha and its dependencies on the British side of the river. The Canal and Tramway of the 2nd Barrier will pass through its land. The Division III. is also connected with Bhudrachellum, on the British side.

Statistics.

98. The area, population, and revenue of the three Divisions are given below, so near as I could ascertain them at the time:—

	AREA. <i>Sqr. Mls.</i>	POPULATION. <i>Souls.</i>	REVENUE. <i>Rupess.</i>
I. Seerpoor	900	15,000	°46,000
II. Yelma	3,000	70,000	70,000
III. Hussunabad Shunkurgiri	2,000	50,000	†45,000
Total.....	5,900	135,000	1,61,000

° Known to be an excessive demand.

† Diminished, owing to disputes.

The description given of the British side of the river will apply generally to the Nizam's side, except as regards the teak forests and the Gond population, neither of which exist largely on the latter side. In respect, however, to extent of cultivation, and to population, to open improvable country and to natural resources, the foreign bank is, as yet, far superior to the British bank. On the Nizam's side the hills stand more back from the river, and the valley is much more extensive than on the British side. I am not able to give the cultivated area in acres on the Nizam's side ; but it must be, at least, four times as great as on the British side. For the same reason I cannot give the culturable waste in acres, but it must be very considerable, and greater even than that on the British side, which has been already shown to be very large. With reference to the known culturable area on the British bank (which has been seen to be upwards of half a million of acres) it would appear that the aggregate of culturable area on *both* banks could not be less than a million of acres. Now supposing that this area were hereafter to be cultivated, and that the value of the gross produce were five rupees an acre, then fifty lakhs of rupees per annum would be added to the production of the country. If only half were to be cultivated, there would still be an addition annually of 25 lakhs' (£250,000) worth of produce. •

99. It has been necessary that I should describe each side of the river separately ; because the left bank and the right bank respectively are under totally different circumstances, the former being under British, the latter under Native rule. But in order to facilitate the comprehension of the valley as a whole, it will be desirable to recapitulate its main features on each side simultaneously, as they appear to the visitor passing down the river from the Nagpore country to the delta of the Godavery.

100. Starting, then, from the falls of the Wurda, near Hingunghat, the voyager would see on the right hand the wild hilly country of the Nizam's dominions, and on the left or British side a broad level valley covered with cultivation. Further down the river, past the junction of the Pynegunga, as the third or upper barrier is approached, the rich valley on the left becomes narrower and narrower, more and more trenched upon by hill and forest, till it is restricted to a fringe of cultivation along the river's bank ; while on the right hand the country somewhat improves, and, though still hilly, is more open. The junction of the Wynegunga is hidden from view by the hills. The barrier itself lies closed in by rocky hills and dense forests, a narrow strip being left on the right bank, along which the tramroad or the canal is to pass. Below the barrier the river is called the Pranheeta. On the left or British side the hills at first arrange themselves in picturesque groups, one of which has been compared by some to the group of seven mountains (*Sieben Gebirge*) on the Rhine, and after that continue for many miles almost to overhang the river, sometimes displaying the fine foliage and blossoms of the teak tree down to the water's edge. On the opposite or Nizam's bank the most noticeable feature is the mouth of the Bibree stream, justly noted for its beauty. Further down on the British side the only point of note is Sironcha, with its old fort overlooking the water, the country continuing to be hilly or jungly, with patches of cultivation. But on the opposite or foreign side the junction of the Godavery Proper causes great tongues of land and broad basins to be formed, all which are partially cultivated, and are dotted over by such towns as Chinoor, Muntancee, Muhadeopore, and the sacred Kaleshwur. Then the hills, of some variety and beauty, cluster thick round the second or middle barrier. This junction of the Indrawutty also is concealed from view by the hills. Below this on the British side long ranges of hills, rising one above the other, run almost parallel with the river till the junction of the Tal is reached. On the opposite or Nizam's side, again, the country is more cultivated and open, and marked by the towns of Nagaram and Mungumpet. Below the latter place, again, the sacred hill of Rootub Goota rises into view, immediately opposite to Doomagoodium, on the British bank, where the head-quarters of the Navigation Department are established. Proceeding downwards at the first or lower barrier, the country is comparatively level on both

Topography of both
banks of the river.

sides, and this barrier is far less formidable than the two preceding ones. Below the barrier, down to the junction of the Sibbree, the prominent object on the British side consists of the small hills of Bhudrachellum, crowned with the cupolas, cones and spires of Hindoo temples. On the opposite or Nizam's side is that tank region already mentioned, which, extending inland some 250 miles to beyond Wurungul, the capital of ancient Telingana, is marked by the remains of countless works of agricultural improvement, attesting a wisdom in the past not known to the native dynasties of the present.

101. Near the junction of the Sibbree the Godavery river scenery begins to assume an imposing appearance. Hitherto as it passed each barrier, and gained the successive steps in its course, the river has been increasing in width, generally being about a mile broad, and sometimes even $2\frac{1}{2}$ miles. Here also the whole range of the Eastern Ghats comes fully into view, some 2,500 feet high, bounding the whole horizon, and towering over all the lesser and detached hills that flank the river. Passing the Sibbree junction the Godavery becomes more and more contracted, and pressed on either side by the spurs of the main range, till at length it forces a passage between them, penetrating by an almost precipitous gorge through the heart of the mountains that mark the frontier of the Central Provinces. It is at this gorge that the scenery of this river has been justly compared to that of the Rhine. Imprisoned for some 20 miles between the hills, the river flows in a narrow but very deep channel, with a current that sometimes lashes itself into boiling whirlpools. Then escaping from its imprisonment, the mass of water spreads itself over a broad smooth surface, resembling a lake surrounded with hills and dotted with islands, some of which are surmounted with Hindoo temples. Then finally emerging from the hills, it forms itself into one mighty stream between flat cultivated banks, till passing by the Madras station of Rajahmundry, and approaching the great Dowlaishwaram Anicut, it breaks off into those numerous channels which permeate the delta. At Dowlaishwaram there commences that network of canals which not only irrigate the lands, but also afford perfect navigation to the seaport of Coconada.

General Statistics of the Valley.

102. The general statistics of the Godavery Valley, including both sides, may be thus abstracted:—

	AREA. <i>Square miles.</i>	POPULATION. <i>Souls.</i>	REVENUE. <i>Rupces.</i>
Right or Nizam's Bank...	5,900	135,000	1 61,000
Left or British Bank ...	3,905	32,850	29,000
TOTAL...	9,805	167,850	1,90,000

This, then, is the great valley through the midst of which Nature has spread out a great river, navigable at some seasons except for certain obstacles, which seem actually to invite the skill and enterprise of man for their removal. It is owing to those obstructions that the river has not been navigated. It is owing to the river not being navigable that the valley, situate so far inland, cut off by distance and by ranges of hills from ordinary land routes, has had no natural outlet, no facilities for immigration and colonization, no stimulus to internal and external trade. It is owing to the want of such advantages that the valley has remained for centuries in a condition of degradation and desolation, so different from the condition of the valleys of the other great rivers in India. Whatever be the effect of the Godavery navigation upon other districts, there cannot be a doubt that its effect upon these, the valley districts, will be great and satisfactory. Whether the river navigation shall benefit Berar and Nagpore, or not; whether it shall attract the traffic from the districts of the Wurda and of Chutteesgarh, or not, there cannot be doubt that it *will*, immensely, stimulate production in the valley of the Godavery itself, and will carry the produce of *that* district to the sea-coast. But such happy consequences may not be immediate; on the contrary, they will be gradual and even slow, for so vast a waste is not easily reclaimed; such interminable forests are not quickly cleared; nor do towns and villages spring up in a day; nor is the requisite human labour obtained, except through the gradual accumulation of the surplus population from other

Its future Prospects.

districts, and through the multiplying of the indigenous population from one generation to another. Still, however long of attainment, the result will ultimately be attained. And such a subject is indeed worthy of the comprehensive forethought of a great Government.

SECTION VI.—THE CHARACTER AND CONDITION OF THE NAVIGATION PROJECT,
AND THE BEST MODE OF PROSECUTING THE WORKS.

103. In the foregoing sections the probable effect of the navigation project has been examined in respect to Berar, to Nagpore Proper, to Chutteesgurh or Eastern Nagpore, to the valley of the Godavery itself. From this examination the following conclusions may be derived :—

1st. That under existing circumstances the project will not be of material importance to Berar.

2nd. That its importance as regards Nagpore is diminished by the construction of the railway to Bombay. That its importance to Chutteesgurh will be diminished by the opening of the Mahanuddy route.

3rd. That still, if the Godavery and Wurda rivers be opened for navigation to Hingunghat, in the Nagpore province, the river route to Coconada will successfully compete with the railway route to Bombay for all the bulkier articles of traffic in the Nagpore country.

4th. That if the navigation be opened only to foot of third barrier the river will obtain a part, though not the whole, of the above traffic.

5th. That the Godavery will obtain a large share of the Chutteesgurh traffic, even though the Mahanuddy be opened.

6th. That the valley of the Godavery itself offers a very extensive field for enterprise and production, which will gradually be occupied.

7th. That the river route to Coconada would not obtain all the Nagpore cotton exports, though it might obtain a portion, the remainder being taken by the railway to Bombay.

8th. That the navigation of the Godavery will reduce the price of salt to the people in the Nagpore province, which will be a great boon.

9th. That it will cause a large saving to the State in the conveyance of military stores from Masulipatam to Kamptee.

10th. That if the Godavery be rendered navigable it may be expected to carry down the following articles from different parts of the Nagpore territories, and from the adjacent Nizam's districts : namely, (exports) cotton, oilseeds, hemp, sugar, wheat, dyes, ghee (clarified butter), hides, wool, country iron ; and to bring back the following articles : namely, (imports) military stores, salt, cocoanuts, tobacco, brass vessels, piece goods, cutlery, iron.

11th. That the affluents and feeders of the Godavery are generally not navigable, and that navigation must chiefly depend on the main river itself.

12th. That there is no immediate hope of the river being open to navigation for more than six months in the year.

13th. That nevertheless this much of navigation would give birth to a great traffic, which will stimulate production and improvement throughout the Nagpore province, and will, for the sake of the people, be well worth a large outlay on the part of the State.

14th. That though some abatements must be made from the anticipations that were first formed, yet there remains a large residuum of practical reality well worthy of active support.

104. Having thus discussed the merits of the project, I proceed to explain, *firstly*, the project itself ; *secondly*, the present state of the work ; *thirdly*, the best mode, in my judgment, of prosecuting it.

The Navigation Project.

105. As already explained, the navigable tract, to which I shall have occasion to refer, extends from the falls of the Wurda near Hingunghat, the cotton mart, to the gorge where the Godavery breaks through the range of the Eastern

Ghat mountains, a total distance of 400 miles. The above extent of river, as before stated, falls within the jurisdiction of the Central Provinces. It is well known that the Godavery river, as above described, is navigable for nearly half the year, except at three points where rocks obstruct the navigation. These three points are called the barriers. Below the gorge in the Eastern Ghat hills, as above mentioned, to the sea there is no difficulty in the navigation.

106. At first there were two kinds of navigation thought of—1st, that in the monsoon or rainy season, from June to November; 2nd, that in dry weather, from December to May. The original plan was to remove obstructions in the three barriers, so as to render these points equally navigable with the rest of the river during a considerable portion of the year. This was chiefly for monsoon navigation. The secondary plan was to improve the whole line (barriers included) so as to indefinitely increase the period of navigation. This was chiefly for dry weather navigation.

107. There was a further plan of rendering the Wurda navigable above its falls up to Natchengaon. But this has not been brought to any practical issue; and I do not take it into consideration.

108. The works first projected for improvement of the general navigation were not sufficient to meet the requirements as now known, and consequently the projects have been largely increased and developed. The main descriptions of works as now proposed are as follows:—

For 1st Barrier.

Anicut at head and canal of twenty-five miles with locks.

For 2nd Barrier.

Anicut with a short canal of five miles with locks. The original project was an anicut with locks in river bed; this has now been abandoned.

For 3rd Barrier.

Anicut at head with canal of 33 miles with locks.

109. For the river itself—that is, its intermediate reaches:—

1st.—Clearing navigable passage of detached rocks generally.

2nd.—Cutting through ridge of sandstone rock at Albaka, between first and second barriers.

3rd.—Groins in shoal points of bed, to confine and regulate flow of the stream. These are of stone, permanent; the temporary work of the same kind, bandall, is of wood and grass.

4th.—The general construction of towing paths, on one or other bank according to circumstances.

110. There were, besides, some important works projected for improving the navigation between the falls of the Wurda and the third barrier. These consist of, *firstly*, two or three anicuts and possibly a short canal, the object of which would be to ensure a certain depth of water in the river itself; and, *secondly*, of reservoirs within some reasonable distance, where water might be stored, to be introduced into the river as occasion might require. The project for these reservoirs has not been matured in a practical shape. It would apparently be one of considerable difficulty and doubt, and I do not take it into consideration. It appears that to ensure a requisite supply of water many tanks and even lakes would be required. There certainly are instances in the Nagpore country of vast bodies of water, miles in circumference, being collected at a comparatively small expense, by taking advantage of the ground. Whether such places could be found in sufficient number near the Wurda remains to be ascertained.

Reservoirs of water. *Works in the Wurda.* *Plans for improving Navigation.*

Lastly, for the second barrier a revised project has been thought of whereby the difficulties of that barrier would be overcome in a manner similar to that adopted at the other two barriers, viz., an anicut and canal of perhaps forty miles. This project has not, however, been matured, and can only be stated as a possible alternative. It would be much more expensive than the first plan (viz., anicut and

locks in the river bed); but the anicut in this project would have a great effect on the reach above the barrier, and thereby greatly improve the navigation there, besides removing the difficulties of the barrier.

111. The costs of these various works are estimated as follows, in lakhs and fractions :—

1st Barrier.

Anicut and entrance lock, four lakhs of rupees (£40,000).

Estimated cost of Navigation works at the Barriers.

Canal and locks at lower end, eight lakhs (£80,000).

The first estimate showed eight and a half lakhs (£85,000), but revised estimate[†] will show four plus eight, or twelve lakhs (£120,000).

2nd Barrier.

LESSER PROJECT.

	Lakhs.	£
Anicut with entrance lock	4	40,000
Canal with locks at tail.....	3	30,000
† In all.....	7 Lakhs.	£70,000

MAJOR PROJECT.

Cost has not been regularly estimated, but may be roughly calculated thus :—

	Lakhs.	£
Anicut with entrance lock	6	60,000
Canal with locks	10	100,000
In all	16 Lakhs.	£160,000

This estimate is merely approximate, but it may be assumed with some certainty that the aggregate would not exceed 20 lakhs or £200,000.

3rd Barrier.

	Lakhs.	£
Anicut with entrance lock	1½	15,000
Canal with locks intermediate and at tail	13	130,000
	14½ Lakhs.	£145,000
In all 14½ or 15 Lakhs.		£150,000

This has not been estimated for in detail, but the aggregate cost may be assumed with some certainty.

112. The cost of the several barriers, then, would stand thus :—

	Lesser Project.		Major Project.	
	Lakhs.	£	Lakhs.	£
1st Barrier.....	12	120,000	12	120,000
2nd Barrier	7	70,000	20	200,000
3rd Barrier	15	150,000	15	150,000
Total Lakhs	34	£ 340,000	Lakhs 47	£470,000

Cost of Navigation Works in the River bed.

113. The cost for works in river (exclusive of barriers) may be thus taken :—

I. General clearance of detached rocks at half lakh for each of the three reaches	Lakhs of Rs. 1½.....	£15,000
II. Albaka ridge of rocks, originally estimated at Rs. 30,000 (£3,000), by revised estimate (owing to increased prices) 70,000 rupees, or say.....	¾ lakh	£7,500
III. Groins in shoals	3½ lakhs	£55,000
IV. Towing paths	½ lakh	£5,000
V. Anicuts above 3rd barrier, four anicuts at 1½ each.....	6 lakhs	£60,000

This is only a vague, rough estimate.

VI. Reservoirs cannot, at present, be even approximately estimated, and may be kept out of the account.

* The quantities fixed at first estimate hold good, but revision has reference to enhanced rates of labour and material.

† This has not been estimated in detail, but the aggregate cost is assumed with some certainty.

‡ The shoals in the 2nd and 3rd reaches are not accurately known, but they are well known in the 1st reach, and from this knowledge cost of the whole has been assumed.

114. The aggregate of cost for the reaches, exclusive of barriers, will amount to—

	Lakhs.	£
I.	1½	15,000
II.	¾	7,500
III.	3½	35,000
IV.	½	5,000
V.	6	60,000
Total Lakhs	12½	£122,500

this being exclusive of reservoirs, and also exclusive of any works above the Falls of the Wurda.

115. The grand total of all work would stand thus—

	Lesser Project.	Greater Project.
Works at barriers lakhs of	Rs. 34	Rs. 47
	£340,000	£470,000
Works in river bed lakhs of	Rs. 12½	Rs. 12½
	£122,500	£122,500
	Rs. 46½	Rs. 59½
	£462,500	£592,500

116. That is, the works from the falls of the Wurda to the Godavery gorge would cost 46½ lakhs or £462,500 without the enlarged plan for the 2nd barrier—*with* that plan the cost would be 59½ lakhs or £592,500. In the first case, allowing for errors in estimate and unforeseen contingencies, the cost may be assumed at half a million sterling or 50 lakhs. In the second case something under three quarters of a million sterling or 75 lakhs. Both these cases are, however, exclusive of reservoirs and storage, should that ever be attempted.

117. It is to be observed that the greater part of this estimate is *not* based on detailed calculations. But the details of some parts supply data for the rest; and the totals taken are large, so that probably the cost would come within the limits proposed, unless indeed the works extended over a series of years, during which period some great changes in prices might arise.

118. Now what would be the result of the works above indicated? They would render the navigation practicable for five, perhaps six, months. The major proposition at the 2nd barrier would establish the navigation in the middle section for a month or so more. This navigation would extend from the falls of the Wurda to the Godavery gorge, a distance of about 350 miles. At the lowest period of the six months from June to December it would suffice for vessels of 2 feet draught, but during the greater part of this period for vessels of greater draught, that is from 3 to 5 feet. But for the rest of the year, that is from December to June, unless works were undertaken of which I cannot estimate the extent or cost, the river would *not* be navigable.

119. I have now to advert to the second heading, namely, the amount of work already done. As regards survey there is a complete profile of the river bed up to Chandah, accurate surveys of the river bed for the first two barriers and of canal alignment in the 1st barrier, and generally a fair survey of the whole river nearly to the foot of the 3rd barrier. As regards construction, the only place where ground has been broken is at the 1st barrier, consisting of preparatory operations, such as quarrying limestone, a tramway to the bed of the river for the anicut, and about two miles of canal excavation, foundation for 50 yards of anicut, and some 1½ miles of river embankment in connection with the anicut. Some boats have been built for the carriage of material; a considerable quantity of plant, consisting of tools and machinery, has been purchased; accommodation for establishments, European and Native, has been provided at Doomagoodium. Some blasting of rocks was done in 1855 at a cost of Rs. 40,000. The cost of these operations may be thus stated:—

	Rs.	£
I. Survey	60,000	6,000
III. Construction.....	3,65,000	36,500
Or in all about	4½ lakhs	£42,500

The survey operations were commenced in 1854 for the sum above mentioned, they are nearly complete up to foot of 3rd barrier, above that point they remain to be done, the cost will not be considerable. The construction work was begun in river in 1855, and at 1st barrier in 1861. The present temporary tramways are designed to run along, or nearly along, the line of the future canals of the several barriers. Their lengths will be as follows :—

At 1st Barrier	18 miles.
" 2nd "	18 "
" 3rd "	32 "
<hr/>	
Total... 68 miles.	

Of these, the tramway at the 1st barrier is half done, that at the 2nd is four-fifths done, and that at the 3rd one-third done. The roughly estimated expenditure amounts to 3 lakhs (£30,000), but the actual cost will exceed that, both because the length is greater than was at first anticipated, and because the price of labour has risen. I have not seen the actual expenditure totalled up. The expenditure already incurred must amount to 3 lakhs (£30,000), and another lakh (£10,000) or more will be required to complete the work. So that the cost of these three tramways, including rolling-stock, will amount to 5 lakhs, £50,000. They can well be opened by the end of this working season, that is by June 1863. There has also been an expenditure on repairs of steamers plying between the barriers, and on boats for the Transit Agency, and for buildings connected with the tramways, which may amount to about a lakh of rupees, £10,000.

120. The total expenditure thus incurred by Government on the Godavery from 1854 to the commencement of the present working season, i.e., up to September 1862, amounted as below in lakhs and fractions :—

	Lakh of Rupees.	£
I. Surveys.....	$\frac{3}{4}$	7,500
II. Permanent	$4\frac{1}{4}$	47,500
III. Construction Tramways.....	3	30,000
IV. Miscellaneous	1	10,000
<hr/>		
Lakhs of Rupees...9}		£95,000

The manner in which this expenditure has been distributed over the period of eight years may be thus seen :—

	Lakhs.	£
1854-55 }	1	10,000
1855-56 }		
1856-57 }		
1857-58 }		
1858-59 }	4	2,500
1859-60 }		
1860-61 }	7	7,500
1861-62 }		
1862-63 }	5	50,000
	2½	25,000
<hr/>		
Total Lakhs of Rupees 9½		£95,000

The assignment for the present year, 1862-63, amounts to four lakhs, which has been further supplemented by two lakhs, making up six lakhs or £60,000.

121. I have now come to the third heading—namely, the best mode of prosecuting the project. So far as I can judge, the works above described are practicable if a fair amount of skill and capital be devoted to them, and if they be so prosecuted as to be completed within a reasonable period they will be done for something like the cost mentioned. The question then arises, How should they be prosecuted? In what order? And what sums annually must be required for this purpose?

Now I think that work should be prosecuted so as to clear the 1st and 2nd barriers, and also the detached works already mentioned above and between those points in the river bed, so as to open the navigation from the Godavery gorge to the foot of

the 3rd barrier. I would restrict operations to the lesser of the two projects for the 2nd barrier. I should have the less hesitation in adhering to the lesser of the two projects for the 2nd barrier, inasmuch as I learnt, from the Executive Engineer, that the work so done will serve as a foundation for the greater project, should that be undertaken hereafter. I would devote, if necessary, a larger sum than that set down for the towing paths, namely, half a lakh—possibly one lakh might be required. In such places as the gorge the towing path would have to be constructed along the steep side of the hill, and in other places approaches would have to be cut at the deep ravines.

122. Now the works thus indicated up to foot of 3rd barrier would open the river from the sea to Moogellee or Dewulmurree (at foot of 3rd barrier) for five months of the year, a distance of 300 miles. It will be apparent from the foregoing part of this Report that this much of navigation would attract the produce and traffic of the valley of the Godavery itself, and of the valleys of its feeders, the Pranheeta, the Wynegunga, the Indrawutty, the Sebrée, the Tal. It will further have been seen that whatever traffic is to be drawn from Eastern Nagpore (Chutteesgurrh and Raepore) would strike the river just below the 3rd barrier. The only tract of country omitted from this calculation is the valley of the Wurda. But it will have been seen that if a good land communication were provided (as it would be) from Chanda and Hingunghat to Moogellee, then even with a route partly land and the rest water, the route to Coconada might compete with the route to Bombay, and would attract a share of the traffic from the Wurda valley. Thus the opening of the navigation to the foot of the 3rd barrier would, at an expenditure of half the aggregate sum ultimately required, secure at least a part of the advantages of the entire project. This moderate expenditure would, so far as it goes, be remunerative. It would also apply a definite practical test to the whole project, and would show conclusively whether it would or would not be expedient to proceed with the remainder of the works. Moreover, it seems to me especially desirable that the efficiency of the works on the 1st and 2nd barriers should be actually ascertained before the works on the 3rd barrier are undertaken. This 3rd barrier is by far the most formidable of the three. The works have not been estimated for in any detail, and might possibly prove to be much more expensive than has been expected. Moreover, when these had been done, it would be urged with some truth that having gone so far the Government should make the Wurda thoroughly navigable, and place it on a par with the river below the barrier. Considering, indeed, the actual state of the river, I doubt whether it would be worth while to open out the 3rd barrier merely for the sake of the Wurda as *it now is*. This river by no means fulfils the expectations that were once formed; its water is often shallow, even during the rains; and it possibly may not prove to be navigable for more than three months in the season. To open the barriers with a view to *this much of navigation alone* might be of doubtful expediency. If this only were done the affair would be still incomplete. In order, therefore, to realize the benefit of the work at the 3rd barrier, it would be necessary to superadd various works for improving the supply of water in the Wurda, and for this purpose several dams or anicuts would be necessary. It has been supposed that these would cost six lakhs, £60,000; but it might possibly cost much more to make the Wurda really navigable for six months in the year. I do not, therefore, regard that part of the project at and above the 3rd barrier so favourably as the other parts, and would hesitate to undertake it at present.

To all this it might be answered that to leave the works of the 3rd barrier undone would be to forego a part of the benefit which would otherwise arise from the works of the 1st and 2nd barriers. This is so far true, inasmuch as the river would obtain a larger traffic if the 3rd barrier were open than if it were not. But then it may be better to execute works regarding which there is comparative

Effect in traffic from the completion of work on 1st and 2nd Barriers.

Reasons for postponing work at 3rd Barrier.

certainty, and which will secure a moderate benefit, rather than to undertake further works of a less certain character in the hope of securing a larger benefit.

123. . The items of cost for that portion of the scheme which I recommend

Cost of works now
recommended.

for immediate and primary prosecution may be thus abstracted from the foregoing summary :—

1st barrier	12	lakhs.....	£ 120,000
2nd lesser project	7	"	" 70,000
River works to foot of 3rd barrier.....	6½	"	" 65,000
Total.....	<u>25½</u>	lakhs	

The financial effect, therefore, of my recommendation must be that works costing up to 25½ lakhs or £255,000 be proceeded with, if the Supreme Government should desire to open the project within a reasonable time. It hardly seems unreasonable to hope for an assignment of eight lakhs (£80,000) per annum, and certainly the existing establishment could, without difficulty, be so strengthened as to supervise an expenditure at the above annual rate. By these means, then, two barriers out of the three and 300 miles out of the 445 would be open for navigation in three years. If the works be prosecuted at all it does seem really necessary to do it at the above speed, otherwise the construction would be protracted over an indefinite period. But further it would be practicable to spend, with due supervision, an assignment of ten lakhs (£100,000) a year from the commencement of 1863-64. If that were allowed, then the works to the above extent would be completed within two years and a half. In that case the navigation may be opened by May 1865, in time for the navigating season, which commences in June.

124. Supposing that the prosecution of the work, as above recommended,

Land carriage from
Valley of the Wurda to
foot of 3rd Barrier.

were decided upon, then it would be absolutely necessary to provide good *land* communication from the valley of the "Wurda" to the foot of the 3rd barrier. The road from Nagpore down to Chanda is already sanctioned and under construction, and will be completed by the end of the year 1863. It would be necessary to extend that line to the head of the 3rd barrier at the village of Kirmiree on the British side, a distance of 40 miles, running through a valley for the most part rich though narrow. There should be a good ferry at the Wurda for the rainy season, and a bridge of boats in the dry season from Kirmiree to the village of Salgaon, on the opposite side. The road should be carried from Salgaon to Moogellee, at the foot of the barrier, a distance of thirty-two miles, following nearly the course of the present unfinished tramway. This road (Chanda to Moogellee), distance 70 or 75 miles in all, at the rate of Rupees 6,000 per mile (usually assumed in the Nagpore province) would cost 4½ lakhs, £45,000. Under any circumstances, whether the navigation were extended to the valley of the Wurda or not, this road would be useful and its advantages would remain. Whether this subsidiary road be or be not kept distinct from the navigation project, it is yet an essential accessory to the scheme as now propounded. The present communication between Chanda and Moogellee by land is very bad at all times, and, in wet weather, impracticable. If it were not to be made, the opening of the 1st and 2nd barriers, so far as the valley of the Wurda is concerned, would be useless, for the traffic would not be able to reach from the cultivated and inhabited country to the head of the navigation. It is equally necessary that this work should advance *pari passu* with the navigation works. If, then, it be decided to postpone the work on the 3rd barrier, I strongly recommend, as an absolute essential, that the road above described be sanctioned, and that the surveys and estimates be proceeded with.

125. Respecting the tramways, I would recommend the earliest completion

Completion of Tram-
ways at 1st and 2nd
Barriers.

of the first and second, as they are so nearly finished. During the period that the permanent works might be under construction the tramways would keep open a certain amount of traffic, and they would be of assistance in the construction of the works. As

regards the third tramway, I would not under the above circumstances, proceed with it ; it has advanced but a slight way as yet, and will be superseded by the road above recommended.

126. In connection with the works, I should advert to the Transit Agency. At present there is a river flotilla of vessels plying between the several reaches as given below :—

On the first reach (between the sea and the 1st barrier),—

The "Prince."

The "Hope."

On the second reach (between the 1st and 2nd barriers),—

The "Sir Arthur Cotton."

The "Shamrock."

On the third reach (between the 2nd and 3rd barriers),—

The "Queen."

The "Rose."

On the fourth reach (between the 3rd barrier and the falls of the Wurda),—

The "Mayflower."

These are serviceable vessels, though not always suitable as tugs ; they draw from 2 to 4 feet of water. They carry officers and employés of the navigation works up and down the river ; they convey stores of all kinds, and tow boats laden with materials, and perform a variety of service of this kind. In these respects they have been most useful ; and as the works proceed they will become vitally necessary. Indeed, without them it would be almost impossible to carry on the works, as at present there are absolutely no other means of communication. But besides the above departmental work, the steamers have brought up a quantity of Commissariat stores, and other articles belonging to Government. During the past season, *i. e.*, the rainy season of 1862, the Navigation Department established an Agency, and undertook to carry mercantile goods, partly by water and partly by land, across the barriers, for one anna (1½d.) per ton per mile. This was done with a view to making a commencement in opening the route to commerce, and to testing the tendency, or otherwise, of trade in this direction. It was calculated that if the Agency received 5,000 tons down river, and 2,000 up, the transit operations would be carried on at a profit to the State. During this year 1862, though the steamers plied regularly, the land carriage at the barriers was quite incomplete. Still the Agency, during the season, conveyed 1,200 tons of goods and 2,000 passengers. The greater part of the tonnage, however, consisted of Government stores. The only article of importance, in the way of private merchandise, was a consignment of about 700 bales of cotton, belonging to Mr. Stanborough, a gentleman who had received an advance of Rs. 20,000 from Government in order to embark in the undertaking.

127. The question then arises as to whether the Transit Agency shall be maintained during the next and subsequent years. In my opinion Should be maintained for Government work alone. it should be maintained *for Government work alone*, and should *not* undertake, by advertisement or otherwise, to convey general merchandize. For the work of the Navigation Department the Transit Agency will be indispensable ; for carrying various consignments of Government stores it will be useful. The above work will, I believe, furnish it with ample occupation. It has no room nor scope for the conveyance of general merchandize. Our officers have enough to do in attending to their own proper business. The cares and responsibilities of a general transit business, which does not regularly pertain to them, only distract them from their official work. And it can hardly be expected that they would perform such extra business with efficiency. Nor do I perceive what particular advantage is to be gained by the arrangement. The route, partly by steamer and partly by land, is confessedly a temporary one, which it is not proposed to perpetuate. Why, therefore, should commercial experiments be made upon it ? Why should an attempt be made to force traffic on the river before the navigation is open ? The rate proposed, one anna (1½d.) per ton per mile, is, no doubt, moderate ; and *if* goods, partly by land and partly by water,

could *really* be conveyed for that rate, with profit to the transit, no doubt the conclusion would be valuable. But it is very difficult to estimate actually *all the costs really incurred* in a Government Transit Agency, and the results arrived at might be partly real and partly apparent, and might not be a safe guide to private enterprise. If they were favourable, there would be doubt as to whether all those subsidiary charges (so difficult to estimate in Government undertakings of this sort) had been included. If they were adverse, it would be said that,

Without undertaking any Commercial work. after all, they proved nothing, as the route was avowedly incomplete. As a matter of fact, however, I do not believe that the present results show what would be commercially considered a profit to the transit. I learn that the receipts, chiefly consisting of freight on Government stores, at one anna (1½d.) per ton per mile, were last season below the expenditure. This circumstance does certainly militate against the supposition that the Agency could profitably carry goods at the one anna (1½d.) rate in the present imperfect state of the communication. I should doubt whether it could afford to do this. But this consideration does in no wise prejudice the navigation project. Nor does it affect the interests of Government; for whether the transit can or cannot carry the stores for one anna per ton per mile, it is at all events much cheaper than the ordinary land carriage. It may be said in favour of having a General Transit Agency that the operation affords valuable experience in the river, which will be of use when the navigation is opened. To this it may be replied, however, that such experience is gained by working the Agency for Government purposes alone, without undertaking other business.

128. On the other hand, there is some disadvantage in any commercial undertaking on the part of the Government Transit Agency, inasmuch as its failure in this respect, which is more probable than its success, would be apt to create a prejudice in the minds of merchants against the Godavery project altogether. It were better far to wait till the navigation works are finished, and then the traffic will follow of itself. If it be really important to open the Godavery route (and I believe it to be so), the works should be pushed on without delay. To force traffic by the river whilst the works are under construction would be to divert the attention of our officers from their real duty, and to delay the completion of the works upon which all our energies should be concentrated.

129. For these reasons I should recommend that the Transit Agency be maintained for the Government work alone, without undertaking anything else.

130. It may be added in this place that, when the navigation shall be opened, there will be no difficulty in the building of boats in any number at any point of the river. There is everywhere abundance of serviceable timber close at hand. The boats constructed by Government have cost 1,000 and 1,200 rupees each. But it is believed that boats sufficiently good for general purposes could be built for Rupees 500 each.

131. I would urge the extension of the electric telegraph line from Sironcha (on the Godavery) past Doomagoodium on to Dowlaishwarum or Coconada. From Nagpore there is already telegraphic communication to Coconada or Dowlaishwarum, and to Sironcha, but none to Doomagoodium, the headquarters of the Navigation Department. The postal communication from Nagpore to Doomagoodium is defective at present; despatches go there by the circuitous route of Ellore. It will be difficult to establish a good postal line from Sironcha down the river bank to Doomagoodium, and at the best such a communication must be tedious, specially in the rainy season. It will often take a week, or even ten days, for a letter to reach Doomagoodium from Nagpore. This delay in the receipt of despatches would prove a great disadvantage, both to the Chief Commissioner of the Central Provinces and the Chief Engineer of the navigation works, at seasons when operations were being actively carried on.

132. Again, Coconada or Dowlaishwarum is the base of operations to Doomagoodium, it being from the coast that the Navigation Department draws its supplies of labour, and much of its materials. It is therefore of consequence

Necessity for Electric
Telegraph line being
continued all the way
along the Godavery.

that the Chief Engineer at Doomagoodium should have means of communication with his Agents at the Coast. Moreover, at many seasons it is of the greatest consequence to know immediately the rise and fall of the river at different points. For instance, when the freshes are coming down in one part of the river, it is necessary that those in charge of works at other parts should have instant intelligence. For these reasons, it appears to be most desirable that the electric telegraph line from Sironcha to Dowlaishwarum and Coconada should be undertaken, with stations at the 2nd barrier and at Doomagoodium. The distance would be about 300 miles. I am not able to state what the cost will be, but I am sure that such cost will be more than repaid by the advantage to the Navigation Department.

SECTION VII.—CONCLUSION.

Final conclusions arrived at regarding the execution of the Navigation Project.

133. The result of the following Report, then, is that the Godavery Navigation Project is sound in principle, and highly conducive to the interests of the Central Provinces.

134. That the project may be conveniently dealt with in two parts:—the first relating to the 1st and 2nd barriers; the second to the 3rd barrier, and to the river beyond it.

135. That the first part is more easy of execution than the second, and more certain in its effects upon the navigation, and ought, at all events, to be executed.

136. That, for the interest of trade, it would be expedient to execute the second part and admit navigation past the 3rd barrier, and beyond it, provided that the work required could be carried out at a reasonable cost, which is as yet doubtful.

137. That the works at the first part of the project, namely those at the 1st and 2nd barriers, and in the river up to the foot of the 3rd barrier, be prosecuted at an outlay of 25 to 30 lakhs of rupees (£250,000 to £300,000), this sum being half the estimated amount required (sixty lakhs, or £600,000) for the whole project.

138. That this outlay should be distributed over two years from the 1st of May 1863, so that the navigation to the foot of 3rd barrier may be open by May 1865, in time for the navigation season, which commences in June.

139. That in the meantime a good road be constructed from Chanda, in the valley of the Wurda, to the foot of the 3rd barrier, at a cost of about 4½ lakhs of rupees, or £45,000.

140. That the tramways at the 1st and 2nd barriers should be finished, but that the tramway at the 3rd barrier should not be proceeded with.

141. That the Transit Department, consisting of steamers in the four reaches of the river, and of tramway establishments at the 1st and 2nd barriers, be maintained for Government work only, without undertaking any commercial operations.

142. That the electric telegraph line be extended from Sironcha on the Godavery to the seaport of Coconada.

143. Before concluding this Report, I desire to acknowledge the obligations which the Central Provinces owe to the Government of Madras for its having, during the past seven years, consistently advocated, supported, and now actually commenced this navigation project, with a foresight and discrimination which will (we may hope) be one day rewarded by the attainment of, at least, many of the results anticipated. I would also beg to add my tribute of admiration to the professional ability, breadth of view, and boldness of conception with which Sir A. Cotton and Captain Haig framed this project, and moulded it into practical shape. I would commend to the favourable consideration of the Supreme Government the exertions of Captain Haig and his officers in executing the preliminaries of the various works. Foremost of the many difficulties with which they have successfully contended has been the insalubrity of a climate from which all have suffered more or less severely. Among the officers, I would mention the names of Lieutenants Montgomerie and Roberts; Major Stevens, the Traffic Agent;

Mr. Mackenny, Mr. Dennison, and Mr. MacGregor. I would refer to the difficult, indeed perilous, service performed by Messrs. Grossilier and Farley in conducting the steamers over the barriers in the flood season of 1861. Several of the employés, who are not commissioned officers, have not as yet been entertained in the permanent service of Government. I would recommend that such gentlemen be admitted to the establishment of the Public Works Department, according to the grades to which they may appear to be entitled. It seems essential that the benefits of the service should be secured to those who have to carry on important operations in an unhealthy country.

144. I now submit this Report, in the hope that such information as it contains may be of some use to the Viceroy in Council in forming a decision on the questions connected with the navigation of the Godavery.

R. TEMPLE,
*Officiating Chief Commissioner,
Central Provinces.*

NAGPORE :

The 23rd January 1863.

PUBLIC WORKS DEPARTMENT, GODAVERY NAVIGATION WORKS.

From Lieutenant-Colonel R. Strachey, R.E., Secretary to the Government of India, with the Governor-General, to the Chief Commissioner of the Central Provinces, No. 1388.—Dated Public Works Department, Simla, the 14th July 1863.

Communications.

River Improvements.

SIR,—In reply to your Secretary's letter No. 85, dated 24th January 1863, I am directed to inform you that His Excellency the Governor-General has read your very clear and able Report on the projected works for improving the navigation of the River Godavery, forwarded therewith, with much satisfaction.

2. The general conclusions at which you appear to have arrived may be shortly summed up as follows :—

The works at the 1st barrier may be constructed for 12 lakhs, and their completion is plainly necessary. Two projects are referred to as having been proposed for the works at the 2nd barrier, estimated at 7 and 16 lakhs respectively, of which you prefer, for the reasons given, to adopt the lesser.

The works at the 3rd barrier are roughly estimated at from 34 to 37 lakhs. These you do not recommend to be taken up at present, confining the project to opening the navigation to the *foot* of the 3rd barrier.

The works between the barriers would be—

Removal of rocks in bed of river	...	...	...	...	...	...	...	...	2½ lakhs.
Groynes for narrowing stream	...	...	...	...	...	...	...	...	3½ "
Towing-paths	...	...	...	...	...	...	...	...	½ "
Anicuts above 3rd barrier	...	...	...	...	...	...	...	...	6 "
Total.....									12½ lakhs.

The total cost of the entire scheme would be—

Minor project	...	...	...	...	...	...	...	...	46½ lakhs.
Major	...	...	...	...	...	...	...	...	59½ "

and it would give a navigation from the falls of Wurda to the gorge of the Godavery, 350 miles, for vessels of two feet draught for five or six months in the year, and for vessels of from three to five feet draught for the greater portion of this time.

The Engineers have proposed measures for obtaining a permanent, or almost permanent, supply of water in the river by help of reservoirs, but no estimates for the cost of such works in any way deserving confidence have yet been drawn up.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

The expenditure up to the end of September 1862 may be estimated at—

[illegible]

but 7½ lakhs more will probably have been spent up to the end of April 1863, or 17 lakhs in all.

The works which you recommend for present execution comprise only those at the 1st and 2nd barriers, and the clearance of the river, &c., to the foot of the 3rd barrier, at a total expenditure estimated at 25½ lakhs, viz. :—

1st barrier	12 lakhs.
2nd „ (lesser project)	7 „
Works in river bed to foot of 3rd barrier	6½ „
Total...	25½ lakhs.

It is not clear whether this estimate includes any portion of the previous expenditure. You also propose, as an essential adjunct to this modified scheme, a road from Chanda to the foot of the 3rd barrier, 75 miles (from Chanda to Nagpore a road is already under construction), and ask sanction to commence a survey, and frame estimates, which are set down at 4½ lakhs. Further you advise that the line of telegraph should be extended from Chanda to Dowlaishwaram or Coconada viâ Doonagoodium, the head-quarters of the works, and that the postal communications should be put on a more efficient footing.

3. His Excellency the Governor-General, after considering the questions raised by you in the light of such information as he has to bear on the subject, is satisfied that by completing the line of Godavery navigation past the 1st and 2nd barriers and up to the foot of the 3rd barrier the rich southern part of the Central Provinces will get the advantage of the river route for the export of its produce and the import of its foreign supplies.

4. This part of the project will be a thing complete in itself, and of certain utility, even if the navigation is only open for some four or five months in the year. It is an error to consider that such communications as these must be permanently open to be of substantial utility. The Baltic is closed for half the year, and still the trade with its ports is of great importance. The canals of all the colder parts of Europe and America are closed for several months in every year, and yet their value is undisputed. For the transport of mere agricultural produce, a partial communication, such as the Godavery might supply, when its ordinary and natural stream shall have been made navigable by the proposed works at the barriers and in its bed, will probably be quite as much as the country through which it passes will really require for a long time to come. The crops come in but once a year, and the whole produce for export should easily be got rid of during the four or five months for which it may be looked on as pretty certain that the navigation may, under any circumstances, be kept open.

5. It will be understood that there is no idea of disputing the superior advantages of a permanent water communication over an interrupted one. But in the present instance it would certainly be the case that the former and complete arrangement, if it could be effected, would greatly exceed the other in cost, and that the works on the more moderate scale would be perfectly suitable for the more extended project, if it should at any future time be desired to carry it out; and it might be the case that after a great amount of outlay it might finally be found an impossibility to maintain a constant supply of water sufficient for navigation, as it would depend on engineering operations without parallel, and of very questionable efficacy, viz., the maintenance of the river supply from reservoirs. Considering therefore that it is certain that the less complete scheme will practically give all that is essential, His Excellency has no sort of difficulty in accepting the conclusion that the more extended project should be entirely set aside for the present, either until the smaller one is actually carried out to

completion, or is in a very much more matured condition than at present. The Engineers will, for some considerable time to come, have quite sufficient employment in working out that part of the project which is certainly practicable, and the execution of which must obviously precede that of the other parts, the success of which may be looked on as in some degree questionable.

6. In considering the scheme that deals with the natural river supply, and will provide for four or five months' navigation, it has first to be considered that the works at the 1st barrier are in progress on designs that have been approved by the Madras Government, though they have not yet been submitted for approval to the Government of India. Inasmuch as these works are in actual progress, the Government of India has no desire to arrest them or to interfere with the designs, unless it is shown to be quite essential.

7. The works of the 1st barrier actually in hand should therefore be carried out vigorously, according to the designs already approved by the Madras Government. Any distinct portion of the works not yet actually begun must not, however, be put in hand till the project has received the approval of the Government of India, excepting under special authority.

8. A detailed statement of the works in progress should be submitted at once, and the Engineers should make every exertion to complete the designs and estimate for these works, so that they may receive regular sanction without loss of time.

9. As regards the works at the 2nd barrier, which are not yet begun, it must be distinctly understood that nothing is to be put in hand until the detailed projects and estimates are sanctioned by the Supreme Government, although on a proper explanation of the general project, and a general approval of it, His Excellency may be induced to authorize the preparation of materials of a durable nature, if it be desired, in anticipation of the submission of the detailed designs.

10. His Excellency considers that no opinion can be given as to which project for the works at this barrier should be adopted, until the receipt of Captain Haig's reports, since he may be able to show good reasons for taking up the more rather than the less costly project.

11. Captain Haig therefore should consider carefully your remarks as to the works at the barrier, and should take the necessary steps for obtaining final orders on the system to be adopted in dealing with them as early as possible. It will plainly be labour thrown away to work out detailed estimates for both projects, and the essential facts can without doubt be quite sufficiently explained on approximate calculations to enable the Government of India to settle the doubtful points.

12. The preparation and submission of the designs and estimates for the works at the 2nd barrier must therefore be looked on as the essential thing now pressing as regards this portion of the project.

13. The tramways at the 1st and 2nd barriers, which are understood to be far advanced, may be completed.

14. In like manner, though your views as to limiting operations for the present to the works at the 1st and 2nd barriers seem plausible, the Government of India must refrain from giving any decision on the matter till the opinion of the Engineers has been heard.

15. All work at the 3rd barrier, however, should be stopped, including the tramway, unless the latter is much more nearly brought to completion than seems to be the case from your accounts. Captain Haig of course to be at liberty to make any representations he thinks fit on this point, and he should report, as early as possible, on the general question, so that the Government of India may be placed in a position to say finally whether the works at the 3rd barrier shall be undertaken now, or shall be deferred till the other two barriers are opened.

16. It will be necessary that great care shall be taken by the Engineers that all minor operations between the barriers, or in the parts of the rivers that will be opened on the completion of the barrier works, whether they be clearing away of rocks, construction of groynes or towing-paths, shall be completed at least as soon

as the canals and locks, and that the necessary detailed designs and estimates be submitted in due course.

17. Captain Haig should be called on to report his opinion as to the period that will be required for the completion of the several parts of the project.

18. A clear statement must be submitted, at the earliest possible date, showing the manner in which the past outlay on the Godavery works has been applied. This statement will include the cost of all stores, machinery, or vessels obtained from England, or transferred from other works.

19. The orders of the Government of India having already been issued in general terms as to the Transport Agency, it will now only be necessary to remark that a full detailed report on the present condition of this branch of the operations, and of the system followed in all its transactions, should be submitted to the Government of India. No addition to the fleet is to be made without specific authority, and all proposals for new work in connection with this part of the project will require sanction by the Government of India in the regular way on estimate, as much as those for building operations.

20. His Excellency concurs with you in the expediency of having a road from Chanda to the foot of the 3rd barrier. Considering that the navigation will be most actively in operation during the rainy months, a good road to the end of the navigation will be almost essential; and if the 3rd barrier is eventually completed this road will still act as a feeder. For the reason above noticed, it is desirable that you should consider and report on the general question of feeding-roads to the river. Metalled lines will probably for the present, as a rule, be out of the question, but much good may be done by lines of a cheap description. The provision of a certain extent of such road might almost be fairly looked on as a necessary supplement to this project.

21. The orders of the Government of India have already been conveyed to you regarding the establishments employed on these works.

22. The question of a line of telegraph, and also of postal communication, between Nagpore and Rajahmundry, along the course of the Godavery, will be referred, with a favourable recommendation, for consideration in the Home Department.

I have the honour to be,

Sir,

Your most obedient Servant,

(Sd.) R. STRACHEY, Lieut.-Col., R.E.,

Secy. to the Govt. of India,

with the Govr.-General.

RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, VOL. II., PART 1; 1869, FEBRUARY.

The Valley of the Poorna River, West Berar; by A. B. WYNNE, Esq.,

F.G.S., &c.

The Poorna valley, between longitudes 76° and 78° east, is traversed by the 21st parallel of north latitude. It is about 124 miles in length from its upper or eastern end to where it passes into the larger valley of the Taptee, the main directions of both diverging at first so as to include an angle of about 50°, but afterwards becoming more nearly parallel, or east and west. The width of the valley may be roughly estimated at from 30 to 40 miles on an average, but is in places greater.

Its boundaries are—on the south the range of the Adjunta ghats,—an abrupt scarp of the Deccan plateau produced, and gradually becoming less marked, to the eastward,—some hilly and undulating ground forming the watershed in that direction between the Poorna and Wurdah valleys; and on the north the lofty, bold and varied escarpments of the Gawilghur range, which carry a high crest westwards near to where the Poorna river runs into the Taptee, the termination of the mountain range here sinking with some rapidity, though not being by any means abrupt.

The southern ranges pass imperceptibly into the usual steppe character of the Deccan, while the mountains on the north are a complex mass or group with a generally east and west extension, and such summit elevations as 3,595, 3,778, and 3,975 feet, declining gradually northward into the valley of the (upper) Taptee.*

These Gawilghur mountains are intersected by steep glens and wider valleys, sometimes presenting nearly vertical precipices of great but unmeasured height, which may in places reach 1,000 to 1,200 feet. The glens and ravines wind intricately among the mountains, affording some very fine scenery, and as their streams seldom retain water for any considerable time the wildness of this is increased by solitude.

The valley of the Poorna possesses but little variety of geological interest, and is principally distinguished by monotonous repetitions of features observable in crossing the Deccan from the seaward to this locality, where each hill and ghat and undulating slope or plain exhibits similar kinds of nearly horizontal flows of grey amygdaloidal trap, with here and there a bed of harder texture of columnar structure, or of bright red bole, or alternations of these, the traps sometimes containing numerous zeolites.

In the river valleys, and where superficial 'rain-wash' has accumulated, a light brown 'kunkury' alluvium is associated with calcareous subrecent conglomerate below and black cotton soil above, one being quite as occasional and accidental as the other, the conglomerate or concrete being perhaps the most persistent along the river courses, the brown alluvium or (?) "soda soil"† more universal, and the cotton soil occurring, subject only to the rule that it is always uppermost.

Upon descending the escarpment of the Deccan into the valley of the Poorna its alluvial plain is entered, often at no great distance from the ghat, and stretching away as far as can be seen, only clear days permitting some of the nearest mountains upon the opposite side to become visible. Heights not being given upon the best maps obtainable, the elevation of this plain and its boundary ranges could not be ascertained even approximately in the absence of a barometer—which is to be regretted, as the main watershed of India separates the sources of the Poorna from those of the Wurdah, the water of the former being discharged eventually at Surat, whilst those of the Wurdah are tributary to the Godaveri, which enters the sea below Rajahmundry, on the opposite side of the peninsula.

The alluvium of this great plain, although of very considerable depth and occupying so large an area, is as completely isolated from that of the neighbouring rivers as such a deposit can be said to be. A section crossing the valley from the Adjunta ghats, by Edulabad across the Poorna river, to the western termination of the Gawilghur range, would show the ordinary trap of the Deccan, forming the high ground at either end, and an undulating country between, which viewed from above or from a distance has a plain-like aspect, but frequently exposes the rocks of which it is formed, consisting of the usual traps, here and there covered only by slight detrital accumulations of the same kinds as those of the Deccan. Except on the very banks of the Poorna no considerable quantity of alluvial matter would be found, and this does not extend far from the river at either side. North and south through Mulkapoor a different section would be obtained. Here a wide space, chiefly on the south side of the Poorna, is occupied by fine brown calcareous alluvium with 'kunkur,' and is connected by a narrow neck at Peeprala with the great alluvial deposit of this valley, which in thickness may exceed 150 feet; and nothing else save varieties of this is to be seen in or near the river from Dadulgaon on its south bank eastwards up the stream nearly to the "sungum" or junction of the Phairlee river, which enters the Poorna near Kowsa, if we except two or three small exposures of trap in its bed near Peeprala Pulsoad and about three miles west of Burra Golagaon. The Poorna changes its course from the N. N. E. at the junction of the above-named tributary, and thence takes a westerly direction, the alluvium on its south side

* These heights are taken from a small photograph copy of a map of Gangra by J. Mulheran, Esq.

† This efflorescing brown alluvium is considered by Mr. Blanford different from the "soda soil" of Madras.

seldom extending beyond an average of ten miles from the river, and nearly coinciding along its southern boundary with the Nagpore extension of the Great Indian Peninsula Railway, while on the north it reaches nearly to the base of the mountains. On the east its rather arbitrary and more or less indefinite boundary closely approaches the watershed east of Ellichpoor, and bending southward traverses undulating country, eventually reaching the flanks of the hills near Oomrawuttee.*

All round the margin of this alluvial tract is a belt of country that might or might not with propriety be included within it, although the surface deposits there do not conceal the underlying rock, the exposure of which was taken as the chief guide in determining the line of boundary. On the north and east this tract of country is very stony, though nothing resembling an old beach is seen, and it may be supposed that streams descending from the mountains and hills have frequently travelled across this space, their courses subject to lateral deviation, covering the whole of it with the coarser fragments brought down by floods at a time perhaps when the water of a lake or the sea occupied the basin of the finer alluvium and arrested the boulder-bearing velocity of these mountain streams.†

In every part of the alluvium calcareous conglomerate or concrete is of common occurrence. It occasionally contains fragments of bone or fossil teeth of ruminants, but, although sought for, no large accumulation nor even a large fragment of these fossils was observed. Yet enough was seen to show an identity of the conditions under which these deposits and those of the Nerbudda valley were formed. This subrecent conglomerate‡ is very frequent in the stony tract above mentioned. It was everywhere searched for worked flints, but without success, although one flake was found in a quite similar deposit forming the right bank of the Godavery at Pyton, in the Deccan, at a considerable distance to the south.

Small land shells are not uncommon in the alluvium; some were preserved and transmitted to Calcutta, but in general they were too fragile for removal. They appeared to belong to existing species. Specimens of *Melania tuberculata*, *Paludina Bengalensis*, *Bithinia pulchella*, *Lymnæa* —, *Planorbis* —, *Unio* (?) *favidens*, *U.*—? have been recognized.

A deposit of varying thickness (within three feet) and but small lateral extent consisting of fine dazzlingly white sand finely laminated occurs in the alluvial bank of the Poorna at Paruth. It appears to be composed of comminuted or disintegrated crystals of felspars with a small admixture of clay. It did not appear to be formed of or to contain minute organisms, such as foraminifera, and was not elsewhere observed.

Much of this Poorna alluvium produces efflorescences of salts, of soda chiefly, and in many places the wells sunk in it are brackish or salt. Over a wide tract on each side of the Poorna river, north of Akola and thence eastward towards Oomrawuttee, wells are specially sunk for obtaining common salt from highly saturated brine.

Some of these salt wells near Dyhunda, in the lands of Gunoree, are from 120 to 130 feet in depth or probably more. They are sunk through yellow clay, then redder clay, and below this a coarse sand or fine gravel from which the water issues with great force. They are lined with wicker work in order to preserve the pottery vessels, in which the water is raised by hand, from breakage. The crystals of the salt are small and it is rather dirty, but during the "dhup kâla" or hot season it can be obtained whiter. The wells are numerous over the tract north of the river, and some also occur to the south.

That the alluvium of the valley is of considerable depth may be perhaps inferred from the absence of numerous exposures of rock, as well as from the depth of nullas and height of the river cliffs. The conglomerate, as usual, occurs in its lower portions, but was observed in some places west of Patulla at different

* Pronounced Oom'rowtee.

† At one place in the stream near Dhanapoor the stony margin seemed to unite with the finer alluvium by alternation of coarse and fine strata two feet or so in thickness.

‡ The native name for this "concrete" is "Karruk."

heights in the sections exposed. Its constant or frequent occurrence beneath the rest of the alluvium would not prove its being contemporaneous in all places, as the trap rocks, upon which these deposits lie, cannot be presumed to have had a surface sufficiently even to have permitted this.

Whether the whole of this alluvium was deposited in a lake, or by the river travelling from side to side of the valley under other conditions than at present obtain, does not appear. A former estuarine state of things may be indicated by the salt-bearing gravels, or a large salt lake, but the even though interrupted surface of the alluvium is against the probability of its having been deposited by the Poorna under present conditions; while want of information as to the relative levels obscures the possibility of determining whether the rocky country about Edulabad may not have formed a natural *bund* flooding the country occupied by the alluvium; certainly the stream through most of this is sluggish, but it seems to be a rather strong assumption that no greater fall than the height of the river banks where it enters this rocky tract—perhaps on an average not more than 30 feet—takes place within so great a distance as extends between this and the upper end of the alluvium, about or S.W. of Oomrawuttee.

Good water is scarce in this district, in some places shallow “jhieries”^o alone can be depended upon for a supply, the wells being brackish, and even the river gravels furnishing brackish water if pierced to any considerable depth. A succession of dry years seems to have greatly reduced the usual supplies of water, and very many of the villages among the hills to the north are deserted, it is said, because the streams which supplied them formerly do not now furnish sufficient water. Not improbably the diminution in the supply has been caused by the wholesale cutting down of the jungles which covered the country before the period of the English Raj.†

The hills and portion of the valley south of the Poorna river have been stated to consist of trap similar to that of the Deccan; all the usual varieties of amygdaloid, zeolitic, columnar, hard, grey and softer, ashy-looking traps occur, their stratification being very perceptible, and always nearly horizontal.

About the Gawilghur range on the north there is a constant dip at low angles in that direction, the lower part of the range being chiefly composed of amygdaloid and soft traps,—and hard basaltic beds occurring in greatest quantity among the higher parts of the hills, where such bands may be seen to course along the sides of cliffs and mountains for several miles,—a capping of the harder trap remaining here and there on top of an isolated peak or hill, while lower elevations around have less angular and more flowing outlines, being formed of the softer varieties of the trap.

Occasionally along the base of this range the beds have been thrown into wide curves with very gentle inclinations, their axes dipping but slightly to the northward.

Intertrappean beds are said to occur among the Gawilghur hills: they were only detected in one place, and consisted of hard chert enclosing numerous shells; but, though near, this is not, properly speaking, within the Poorna valley.

Perhaps the most interesting geological feature of this country is the occurrence of a great fault, with a down-throw to the south, which may be very considerable, as it shifts the trap downwards for some two or three hundred feet visible, added to an unknown thickness of the trap which is buried by it, so that trap, of what exact horizon cannot be stated, is brought against the underlying Mahadeva or Bâgh (Tanda)‡ sandstones. This fault crosses the country in an

^o This name is applied to small excavations in the sandy bed of a river reaching the water which trickles beneath the surface, and thus becomes naturally filtered.

† Want of water is much complained of at Chikulda. There seems to be no reason why the plateau to the east of the bungalows should not afford a sufficient catchment basin for the station. As the trappean strata of the hill dip N. by W. at 5°, if wells were sunk, the north side of the plateau would be the position to choose with most probability of success. Near the bungalows, however, the plateau, if such it can be called, is very narrow, and affords a much smaller catchment area, yet even here the hill must contain strata which retain water as it issues from the rocky beds of nullas, and one well immediately beneath the northern edge of the plateau, and at a considerable height upon the mountain-side, is stated never to go dry.

‡ Bâgh-Tanda is the name generally used by people when speaking of Bâgh at a distance therefrom.

east and west direction, close to the foot of the Gawilghur range north of Ellichpoor, where the abrupt southern scarp of the range shows these sandstones occupying the interiors of open curves in the trap like those just now mentioned. The difference of inclination between the sandstone and the traps is but slight, so that their unconformity is, as usual, not very strongly apparent, though it nevertheless exists; the line of contact where the overlying traps rest upon the sandstone is frequently difficult to see when close by it, though from a distance the difference of colouring and the bold projections of the sandstone outcrop mark it well. The sandstones are chiefly soft or coarse white and even-grained rock, which would doubtless make a good building stone. A large mass of these occurs in the lower portion of the group exposed; above them are conglomerates, other sandstones of similar kind, purple and black shales and flagstones, variegated and white flagstones and shales, and then solid grey limestone with silicious or cherty nodules of peculiarly rugged aspect, these limestones in some places becoming so variegated as to form what if polished would doubtless be a handsome marble.

In this group of Mahadeva or Bâgh beds dips to the north of 10° and 15° , with others more nearly horizontal, may be sometimes seen; these becoming less as the sandstones finally disappear beneath the Gawilghur traps to the north of the cantonments of Ellichpoor. In the river at Nurrha, north-east of the latter place, the section is somewhat unusual. The ground here seems to have been intensely faulted, and instead of leaving the trap and passing over the fault on to sandstone at the base of the hills, trap is again found north of the general line of fault; then occur several large dykes of another intrusive trap different from that usually met with, between which are masses of the limestone, sometimes resting upon a conglomerate, and tilted in various directions at angles of 35° and 50° . Beyond this disturbed locality the next rock seen is sandstone, horizontal for some distance, but soon overlaid and covered up from view by the unconformable trap.

In the flaggy portion of the Mahadeva or Bâgh group impressions of large plants have been observed, and in the shales and some of the limestones numerous small univalve shells.

Fossils were known to have occurred north of Ellichpoor, as mentioned by Dr. Bradley. These sandstones were known to the late Rev. Mr. Hislop, but seem to have been erroneously considered intertrappean. Lithologically they frequently recalled the appearance of the subtrappean cretaceous rocks of Bâgh Tanda and Rajpoor along the Hutnee river, &c., in the valley of the Nerbudda, and it was a disappointment not to find the same, or the same quantity of fossiliferous evidence here, the beds in both places being possibly or probably of the same age.

Laterite occurs on the new road from Ellichpoor to Oomrawuttee at a place called Bulgaon or Burgow, about six miles from the latter city. It is more properly a lateritic conglomerate of small pebbles cemented together by iron oxides. It lies horizontally, and has much the appearance of a recomposed rock, in many places quite incoherent, harder at the top and outsides than internally, and the pebbles are all red, bright purple or ferruginous, glazed outside and not recognizable as derived from any of the traps of the country, unless from their resemblance they might be taken to have come from one of the beds of red bole, which are not very uncommon; but then there is no reason why if so derived they should not be intermixed with other trap pebbles. This has all the appearance of a local deposit, does not crop out in some natural excavations near at the same level, and apparently passes away underneath the cotton soil, but, being horizontal or nearly so, shows for a considerable distance along a sluggish stream which occurs here, occasionally varying in structure so as to become a mottled white and purple rock of some strength.

In one place on the bank of this stream a little cliff shows the incoherent gravel resting upon a soft ferruginous bed about 9 feet thick, with some lines like those of deposition. Beneath this are 5 or 6 feet of greenish-grey trappean mudstone, very splintery and breaking up into cubical forms so much that it is nearly impossible to obtain a fresh fracture; some harder parts seem calcareous, and have a fracture resembling that of compact limestone. The laterite may be traced for

more than a mile in an east and west direction. Near Budja Kaira, on the larger river here, strong vesicular laterite undulates about horizontally, but does not continue down the stream.

Again at Reethpoor, lying to the eastward from Oomrawuttee, there is a quantity of laterite in low swelling undulations—with the usual appearance of lateritic ground, a ferruginous more or less smooth surface and occasional hard projecting knobs, but not good sections of the rock.

At Chickulda (the hill station on top of the Gawilghur range frequented by people from Ellichpoor) the plateau upon which it stands and the surrounding summits have a strongly lateritic appearance, such as may be seen at Matheran and other summits of the Western Ghats.

These indications of laterite, occurring as they do in situations where the uppermost beds of the trap series might be supposed to occur, may indicate a similar or nearly the same lateritic horizon which is known to occur among the uppermost, if not actually on the top, of the Deccan traps along the Western Ghats. Otherwise they may be referrible to zones of ferruginous strata more specially lateritic than the layers of red boley trap referred to as occurring in this neighbourhood and on the Deccan plateau; but their limited development and isolated character hardly afford sufficient grounds to reason upon with much probability of arriving at trustworthy conclusions.

The cotton soil or black soil of the Poorna valley—although common enough, as is usual in these trappean districts—has no geological peculiarity here requiring attention. To its development, however, and the fertile nature of soils derived from the trap, may be traced doubtless the name which this country has obtained as a cotton-producing district.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. II., Part 4; 1869, November.)

COAL-FIELD NEAR CHANDA, CENTRAL PROVINCES.

Since the first notice of this field was published in the Records of the Geological Survey (August 1868, p. 23) a systematic examination of the field has been commenced. It was fully pointed out by Mr. W. Blanford, in the paper referred to, that the country was in parts so covered that it would be impossible to obtain any satisfactory knowledge of its structure without boring or sinking. Since then two skilled borers, and boring tools, have been obtained from England, and further sets of tools are on their way. The season had already far advanced before these were available, and as the rains were then near at hand it was considered desirable that these men, who had just arrived, and who were therefore quite unacquainted with the peculiarities of life in this country and of the climate in which they were to work, should, for a time at least, be kept where good house shelter could be obtained. The work was placed under the immediate charge of Mr. M. Fryar, M.E., Mining Assistant on the Geological Survey, and he was requested to select spots for boring within reach of Chanda or Ballarpur during the rainy season and to keep the men at first together, so that they could aid one another in any difficulty which might occur at first starting.

Under Mr. Fryar's instructions the first bore-hole was commenced in the beginning of June. This bore-hole (No. 1) was very near the south-east corner of the boundary of the Nuggeena Bagh, north of the native town of Chanda. This bore was put down 80 feet and was then stopped, "as the material bored through continued to be simply stiff sand."* A second bore was then commenced about 230 feet from the first, in the direction of the dip of the rocks,—about east 15° north. This passed through the following section:—

Feet.	Inches.	
12	0	of ochrey arenaceous shale.
8	0	soft shale of deep red and purple colour.
20	0	of the same material as found in No. 1 bore-hole.
Total...	40	0

At this depth, 40 feet, this bore-hole was also stopped.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 3 was then commenced at about 450 yards still further in the direction of the dip, or into the field, or about 527 yards from No. 1. This bore-hole was near the junction of the Ghimoor road and the Nagpur road, its bearing from No. 1 (magnetic) being about north 38° east.

This third boring gave the following section :—

Feet.	Inches.	
5	0	Brown soil.
11	0	Red brongel.
3	0	Brown sand.
1	0	Hard red ironstone.
17	0	Light pipeclay.
2	0	Dark-brown clay.
12	0	Soft light sandstone.
3	0	Light-brown sandstone.
10	0	Light-coloured sandstone.
7	0	Very light-coloured sandstone, very coarse.
2	0	Yellow sandstone.
4	0	Very dark sandy shale.
25	0	Variegated sandstone.
10	0	Yellow sandstone.
11	0	Brown sandstone.
9	0	Variegated sandstone.
1	0	Coarse brown sand.
25	0	Variegated sandstone.
2	0	Light-blue sandy shale.
2	0	Good coal (a).
12	0	Very dark-blue shale, a little sandy.
7	0	Light-blue sandstone, a little shaly.
24	0	Light-coloured sandstone.
1	6	Black shale mixed with coal (b).
16	0	Light-blue sandstone.
1	0	Dark sandy shale.
0	6	Iron pyrites.
18	0	Light-blue sandstone and brown sand mixed.
Total ...	242	0

“And as in this depth we have entered something of a Talchir appearance I have stopped this hole and commenced one at Ballarpur.” (Mr. Fryar’s report, 24th July.)

Specimens of the coals passed through in this pit, as brought up by the pump, were assayed and yielded—

	Carbon.	Volatile.	Ash.
(a) two-feet bed	47·8	41·0	11·2
(b) eighteen-inch bed	42·7	41·2	16·1

both poor coals, neither containing 50 per cent. of carbon. The beds are also, from their small thickness, unworkable with profit at that depth.

A fourth boring was made near the dāk bungalow to the west by south, and between the bungalow and the Jhurput nala. This (No. 4) was put down with small rods, “and ought to have entered coal a few feet from the surface if the apparent dip of rocks at the surface had been a guide approximately to the dip of the coal beds below.” (Mr. Fryar, 28th July.) This boring was about 500 feet to the west of one put down by Mr. Binnie, C.E., in which coal was said to have been cut. No. 4 did not reach coal, and was abandoned.

Preparations were made for a fifth boring (No. 5) about six chains from the Jhurput nala on the left bank, due south of the town of Chanda, but no boring was carried out here.

At Ballarpur the first boring alluded to above was put down on the left bank of the river, nearly opposite the point where coal is seen on the right or Hyderabad side of the river, and about 300 feet from the river bank. This position was injudiciously selected, as proved to be the case. It was in fact within the limits of the old bed of the river, and was abandoned, as there was not tubing “enough to carry the hole through the running sand and gravel met with.” This difficulty might certainly have been avoided, but unfortunately it was not. The probability was in fact pointed out in April 1867 (see p. 25, Records, Geological Survey of India, 1868), where it is said, “in sinking upon the Chanda side it is far from improbable that only alluvial clay may be met to the depth mentioned.” The boring tools were then shifted to a second position where rocks were visible close by. This second hole was put down about a mile to the north-east near the town of

HYDERABAD AFFAIRS.

Ballarpur (less than half a mile). This boring was carried down to a total depth of 236 feet.

The following is the section passed through :—

Feet.	Inches.	
3	0	Red iron brongel (moorum).
6	0	Soft brown sandstone.
9	0	Strong blue clay.
2	0	Very dark-red sandstone mixed with iron.
10	0	Brown sandstone.
30	0	Soft light-coloured sandstone.
12	0	Variegated sandstone.
1	0	Red sandy clay.
6	0	Dark-coloured sandstone.
3	0	Brown sandstone.
1	0	Hard red sandstone mixed with iron.
10	0	Brown sandstone with mica.
16	0	Yellow sandstone.
0	9	Good coal.
0	9	Black shale.
1	6	Good coal.
2	0	Very dark shale.
3	0	Green-looking sandstone (blueish).
10	0	Dark-blue sandstone mixed with shale.
26	0	Light-coloured sandstone.
0	9	Iron pyrites.
26	0	Light-coloured sandstone.
2	10	Black shale, a little coaly.
10	0	Dark blue sandstone mixed with shale.
26	0	Light-coloured sandstone.
0	9	Iron pyrites.
0	9	Light coloured sandstone.
3	0	Black shale, a little coaly.
11	6	Dark-coloured sandstone, a little shaly.
1	6	Iron pyrites.
1	6	Light-coloured sandstone.
Total... 236		7

Mr. Fryar reported on the 16th September that he had ordered this hole to be stopped, "as we are evidently in the Talchir sandstones." He adds, "you will observe a similarity of section by comparing the second hole at Ballarpur with the No. 3 one at Chanda" (given above). There is doubtless some little similarity, but I am unable to see the proof that the bore was evidently in the Talchir beds.

The boring rods were then moved from Ballarpur to a point on the road to Moolk from Chanda, between two and three miles from Chanda town, near the place where the road crosses the Jhurput nala, in the corner between the stream and the road to the south of the road. This boring was in progress up to date of last report, and on the 12th instant had reached a total depth of 124 feet 6 inches. The following is the section :—

Feet.	Inches.	
5	0	Loose sand and loamy soil.
6	3	Yellow sandstone and bands of ironstone.
1	3	Hard red ironstone.
7	0	Variegated sandstone with little clay.
11	0	Soft red ironstone.
0	6	Ironstone band.
8	0	Red sandstone mixed with iron.
4	0	Yellow sandstone.
11	0	Variegated sandstone.
1	10	Yellow sandstone.
0	8	Very hard red rock.
7	6	Brown sandstone.
28	0	Light-brown sandstone.
9	0	Light-red sandstone.
1	0	Coarse light-brown sandstone.
2	6	Hard red rocks.
20	0	Variegated sandstone.
Total... 124		6

It is evident that the rods have not yet touched a bed of the coal-bearing rocks in this section, all the beds passed through belonging to the Upper or Panchet series.

Reviewing the results thus obtained, we find that borings at Chanda, which are

represented as having passed through the entire thickness of the coal-bearing rocks there, and to have pierced the Talchir beds below (in which no coal is known), exposed only two thin beds of poor coal, so thin as to be unworkable; while at Ballarpur also a boring of about the same depth (about 240 feet), said in like manner to have gone through the entire thickness of the coal-bearing rocks and to have pierced the Talchirs, showed also two beds of coal, one of 18 inches, one of 9 inches in thickness.

It need scarcely be said that none of these are workable at the depth at which they occur.

Before these explorations had commenced, Major Lucie Smith, Deputy Commissioner of Chanda, who deserves the highest credit for the sustained zeal and intelligent earnestness with which he has prosecuted these inquiries, had a pit opened on the bed of coal visible in the Wurdha channel, near Googoos, or Chendoo. And from the coal there met with, at a depth of 30 feet below the surface, a considerable quantity was raised for experimental trials, to which I will presently refer. As, however, this pit was within the limits of the ordinary flood level of the Wurdha, a bore-hole was put down about 330 yards from the bank of the river and nearly in the line of strike of the beds. This bore-hole was carried out by Corporal Carson, of the Public Works Department, under the orders of Major Lucie Smith, Mr. Fryar also assisting. As was tolerably certain at such a distance, the coal was found to continue. This bore-hole was sunk altogether to 121 feet 6 inches, and gave the following section :—

Feet.	Inches.	
3	0	Surface clay.
5	0	Red moorum.
40	0	Variegated sandstone.
8	0	White sandstone.
6	0	Yellow clay.
10	0	Dark-brown clay.
2	0	Black shale.
3	0	Coal.
3	0	Dark sandy shale.
3	0	Coal.
5	6	Blue shale.
12	0	Coal.
4	0	" mixed with iron pyrites.
5	0	Coal.
0	6	Shale.
11	6	Coal.
Total ...	121	6

Below this is white sandstone streaked with black shale. It is much to be regretted that the boring was not continued, so as to ascertain the thickness of the formation here, and the position of this thick deposit of coal in it.

The coal having thus been proved here, a pit was commenced and is now in progress.

A second bore-hole was then commenced about a mile to the south, and to the west a little south of the village of Googoos. This is, as nearly as can be, the locality recommended by the Geological Survey in 1867, "about 300 yards west of the village of Googoos." This bore-hole was carried down in all about 112 feet, giving the following section :—

Feet.	Inches.	
6	0	Surface clay.
22	0	Variegated sandstone.
0	3	Ironstone.
21	6	Variegated sandstone.
2	6	Red rock.
4	0	Yellow clay.
6	0	Dark shaly clay.
3	6	Shale.
2	0	Crimson-coloured sandstone.
17	0	Clay and sand.
20	0	Light-coloured sandstone.
7	0	Variegated sandstone.
Total ...	111	9

HYDERABAD AFFAIRS.

At this depth the mineral lifter jammed, and, after several days' unavailing efforts to lift it, it became evident that it would be necessary to sink to it, in order to relieve the tools. After some delay this sinking is now in progress, and had reached 27 feet on the 12th instant.

Such is the progress made in the exploration of the field.

As regards the important question of the quality of the coal, several trials have been made. The coal raised from the pit near Googoos was first sent to the Great Indian Peninsula Railway for trial in their locomotives. The Locomotive Superintendent reported on the 16th April "that the coal was not suitable for locomotive purposes, being very dirty. Out of 1 ton 4 cwt. used there were 6 cwt. of clinker, but very little in the smoke-box, with a load of four cotton wagons and one brake. Great quantities of sparks came out from the chimney, and remained on fire for some time. From Boorhanpore to Khundwa the brake-van alone was attached to the engine, and although the fire had been cleaned at Chandnee station it had to be cleaned again before getting to Dongergaon (17 miles). We could not get a welding heat with the coal, although it contains great quantities of gas."

The fire-boxes on the Great Indian Peninsula Railway are constructed to suit English coal, and the engineers are accustomed to its use. There appeared, therefore, sound reason for not admitting this to be a conclusive trial. More coal was raised, and better coal selected, and this was sent to the East Indian Railway at Jubbulpore, some to the works in progress under the Public Works Department at the Kanhan bridge, and also a second supply to the Great Indian Peninsula Railway. The results of these trials are decidedly encouraging. It is said that the coal took the train on the Great Indian Peninsula Railway down as far as Budnaira (100 miles) without difficulty; the engineers were agreeably surprised with its capabilities, but did not "think it quite up to the mark." At the Kanhan bridge works it was tested in a small portable engine. "With Chanda coal steam was got up in 1 hour and 25 minutes with a consumption of 36 lbs., the coal being wet, a strong breeze blowing and rain falling at the time. The coal burnt clear and without clinkers, and evaporated

lb. of coal." The Chanda coal is specially noted as "burning clean."

The trial on the East Indian Railway was the only one in which the Chanda coal was compared with other Indian coal. "The Locomotive Superintendent reports that the consumption of Chanda coal on two trials was 88½ cwt. and 85 cwt. per 100 miles, against 67 cwt. of Ranigunj coal for the same distance. The coal did not work well at first, partly,—it appears, owing to the construction of the fire-boxes, and partly, perhaps, to the stormy weather in which one of the trials was made,—but it did better afterwards."

These trials show the "duty" of the coal to be as compared with English coal ("small and deteriorated by exposure") as 4 : 6·5, or 61 per cent., or, in other words, it is $\frac{2}{5}$ worse than this English coal.

As compared with Ranigunj coal its duty was as 67 to 87 (mean of 88·75 and 85) or 77 per cent., or nearly $\frac{1}{4}$ worse. It is not stated what "Ranigunj" coal was in use.

The coal, however, did the work required of it, and in a satisfactory manner.

These coals were, as mentioned, from the pit sunk at the Wurdha. To test the coal met in the boring near that river, as given above, Mr. Fryar was requested to forward specimens. Of these he sent 33, one from each of the three-feet seams above the thick coal and 31 from it, these being taken from the material brought up by the pump at intervals of about a foot of sinking. These were all assayed carefully by Mr. Tween, and the results are given below.

There can be no doubt that assays of this kind, and more especially when made on the stuff broken down by a boring-chisel, are only approximate indices to the value of the coals tested. But in the absence of better means they do afford fairly comparable results, and do unquestionably give a fair indication of the

economical value of the coals. Indeed, the very results given above are singularly confirmatory of this. The assays were completed for several weeks before the above results of actual trials were received.

The 33 specimens tested gave the following results :—

Depths, &c.	Carbon.	Volatile.	Ash.	Depths, &c.	Carbon.	Volatile.	Ash.
A (1st three feet seam)...	46.9	44.0	9.1	16	38.5	36.7	24.8
B (2nd three-feet seam) .	37.4	28.0	34.6	17	44.2	31.4	24.4
1 (from thick coal) ...	48.0	36.6	15.4	18	29.3	23.5	47.2
2	45.5	36.4	18.1	19	36.8	33.0	30.2
3	44.0	39.4	16.6	20	45.0	39.6	17.4
4	43.5	40.0	16.5	21	46.3	41.1	12.6
5	44.4	39.8	15.8	21*	44.9	42.5	12.6
6	44.7	39.5	15.8	22	42.7	30.6	26.7
7	47.4	36.8	15.8	23	45.3	33.0	21.7
8	47.7	36.8	15.5	24	52.4	32.0	15.6
9	47.6	40.0	12.4	25	40.3	24.5	35.2
10	48.2	39.8	12.0	26	45.6	32.8	21.6
11	46.6	44.6	8.8	27	44.2	29.0	26.8
12	40.7	44.5	14.8	28	55.1	32.0	12.9
13	60.4	33.0	6.6	29	35.6	32.8	31.6
14	38.3	28.1	33.6	30	56.2	31.6	12.2
15	37.8	28.8	33.4				

It is obvious from these results that while this thick deposit contains some layers which are really good coal, there is also a large amount which is scarcely deserving of the name of coal at all. Stuff with 30 and 40 and even up to 47 per cent. of ash—useless matter—would be of no avail excepting for purely local demand in such work as lime-burning, &c., while coal such as is represented by No. 13 or No. 30, or the bed A, would hold just comparison with some of the best coals in India. Probably the fairest way, seeing that, although the specimens are taken from about every foot, the actual matter assayed may really represent only an inch or two in thickness, is to take the whole as one, and take as the mean composition the average of all the results (neglecting for the present the two separate 3-feet seams), and for comparison to take 30 specimens of Ranigunj coals from different worked beds, and take the average composition of these.

Taking the 31 specimens of the Googoo coal, the average result of all is—

Carbon	...	...	...	...	44.51
Volatile	...	...	...	...	35.34
Ash	...	...	...	...	20.15

And the average result of 30 Ranigunj coals is—

Carbon	...	...	...	...	50.9
Volatile	...	...	...	...	34.6
Ash	...	...	...	...	14.5

that is, the Googoo (average) coal is 6.39 per cent. inferior to the *average* of Ranigunj coals as to the main heating power, and it is also 6 per cent. worse than the same as to amount of useless matter. Or, viewing it in another way, it may be said that out of the 31 odd feet of "coal" there are 28 which contain less carbon than the *average* of 30 Ranigunj coals, good and bad, and only 3 which contain more; while there are 23 which contain more ash than the same average, and only 8 which contain less.

These results appear unquestionable, so far as the coal yet obtained is concerned. That this coal will at the same time prove highly useful cannot for a moment be questioned; and we must only continue to seek for better.

The results of these trials showed the duty of Chanda coal roughly as compared with Ranigunj coal to be as 67 to 87. The comparison by assay gives 45 : 51, or the trial by rail gives the work in the ratio of 1 : 1.29, that by assay as 1 : 1.14. As compared with English coal the duty was by actual trial as 4 to 6.5, by assay as 44.5 : 68, or, in the first case, as 1 : 1.63, in the latter as 1 : 1.53.

These are very close approximations and fully bear out the value of such assays. In all cases, it is worth notice also, the result as per assay is more favourable than that by actual trial. Both methods of testing the value prove that good useful fuel exists near Googoo in considerable quantity.

The explorations are being carried on with vigour, and the results will be given from time to time.

In connection with this inquiry, it is necessary to give publicity here to some important facts regarding which considerable misapprehension has evidently existed. In the last general report on the Central Provinces the Chief Commissioner has (p. 76) said: "so far coal has only been discovered in that known as the Damuda series, and it remains to be proved whether the Kamptee group is carboniferous." This name "Kamptee group" has never been published before or defined, and without such definition it is meaningless. It was a term used by Mr. W. Blanford on a preliminary sketch map of the district, copy of which was given to the officer of the Geological Survey working at Chanda, for his information. But the term was simply one of convenience, and for temporary local use as applied to a series of beds in the vicinity, and signifying nothing more than those local beds—simply a name used instead of a long phrase to convey certain peculiarities in texture, &c. It is one of many such short names which, used for a time merely locally, give place to others when relations and connections have been traced out. It has therefore never been published or used in any other way than as a term of convenience among the officers of the Geological Department. It is in fact meaningless without definition.

But having thus been used, I may state that the local beds so called "Kamptee" are nothing more nor less than the Central India representatives of the great *Panchet* series of rocks, so well seen in the Ranigunj coal-field, still better developed in the Jherria, the Bokaro, the Karumpura, and other detached coal-fields towards the west, and which series of rocks can be (and have been) traced across all the intervening country up to Nagpur and Chanda. And as in the Ranigunj field, so in every other section exposed throughout the hundreds of miles of country (thousands of square miles), not a trace of coal is known to occur in them. This induction is far wider and far more satisfactory than any examination of the Central Provinces alone could afford.

But, in addition to this, accompanying this extension and development of the *Panchet* series, there is, from east to west, a steady and continuous but rather rapid diminution of the true coal-bearing rocks (the *Damuda* series), so that the formation which in the east is of several thousand feet in thickness, with more than one hundred beds of coal of varying thickness, and which is there easily divisible into three groups, on passing to the west so dwindles down that, in the Nerbudda valley and in the Chanda field, the total thickness of the formation does not exceed as many hundred feet as it was thousands in the east, and that all the coal is confined to a few beds of great irregularity near the base of the series. These facts also have been established not by any local investigation, but by a long continued and systematically carried out series of examinations and measurements spread over hundreds of miles of the country.

There appears not a doubt as to the fact that coal does not occur in the *Panchet* rocks. There is equally no doubt that coal is not in the Talchir rocks below, and the simple point that remains to be proved in the Chanda field is the extent, thickness, and value of the coal which does accompany the *Damuda* rocks. If the country were not so much covered the limits of these rocks could readily be traced; there is no difficulty in distinguishing them. But unfortunately there is a large part so concealed by superficial deposits that the existence of these coal-bearing rocks must be probed out by boring. And this is what is now being done by the Geological Survey for the Government of India.

The borings at Chanda and at Ballarpur given above are additional proofs of the very limited thickness of these rocks. The entire thickness of the *Damuda* series, as it there exists, together with all the overlying beds, is said to have been passed through within about 235 feet. Of this more than one-third belongs to the upper series, leaving the thickness of the entire *Damuda* or coal-bearing formation here not more than about 150 feet!

T. OLDHAM,

The 18th October 1869.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. III., No. 2; 1870, May.)

THE WARDHA RIVER COAL-FIELDS, BERAR AND CENTRAL PROVINCES.

The last notice of these coal-fields was given in the Records of the Geological Survey of India, Vol. II., pt. 4, p. 94 [1869, November]. Since that time great progress has been made in the detailed exploration of the field, and it is now possible to give a tolerably accurate estimate of the extent of area over which the coal can be traced, and of the amount which is available, in the vicinity of the river Wardha.

This river Wardha forms the boundary between the Central Provinces, lying to the east of the river, and the "Assigned Districts" (Berar) and the Nizam's territories, lying to the west of the river. The same boundary is continued further to the south by the Pranhita, as the stream is called after the junction of the Wardha and Weinganga, and still further to the south by the Godavery, as the continuation of the same stream is called after the junction of the Pranhita and Godavery, near Sironcha.

Previously to the recent exploration the only places where coal had been actually found were a few points exposed by the cuttings of this river. The whole surface near the river is so covered with widely extended beds of calcareous gravels and conglomerates (? pliocene) and thick masses of sands and clays and often of regur, or black cotton soil, that, as a rule, very few, and these very limited and imperfect, sections are seen, and the structure of the country must to a large extent be imagined or built up from these small sections. Although thick beds of coal were visible in the banks of the river, their continuance inland could not be traced, and even where the rocks were exposed the denudation had been so great, and the thickness of the covering clays, &c., was so considerable, that the outcrops of beds of such marked character as coal and coaly shale of 40 and 50 feet in thickness were entirely concealed, and it therefore was essential that actual borings should be put down. The results of a few of the early trials were given in the notice referred to above. (Vol. II. p. 94). Shortly after the publication of that notice three additional sets of boring tools were received from Europe, and were at once turned to account. And some time later a steam boring machine of Mather and Platt's construction was delivered at Chanda, and preparations were made for working it. I shall now give briefly the principal results obtained.

The two brace headmen who had been sent out from England had both suffered from the climate. Mr. Heppel had a very serious attack of fever, and was for a time dangerously ill. But he got over this attack, I am happy to say, and resumed his work as zealously as before. Mr. Longridge had suffered slightly at several times from the effects of the sun; and, I regret to say, the attacks became more frequent and severe, until it was necessary that he should be invalided and sent home at once. The advantage of his aid was lost from the very commencement of the open season. Mr. Bateman Smythe was appointed (10th December) in lieu of Mr. Longridge, and has proved a most efficient and useful Superintendent of the Works. Mr. W. Penn Mather, who had had very considerable experience in boring with the steam boring machines constructed by the firm with which he was connected (Mather and Platt), and who had temporarily come to India, was appointed to take charge of the steam borer, and joined in the beginning of February.

Taking up the narrative of the exploration from the time of last report published in these Records, I will now briefly give a notice of the principal facts.

I shall not at present delay to give the full details of the sections cut through at the various holes, but simply enumerate the localities where these have been put down and state the results. The details will more appropriately be given with a more detailed geological report.

Up to November 1869, as already stated, only a few unsuccessful borings, in which nothing but thin unworkable beds of coal had been met with, had been carried out. A deeper boring to the east of Chanda town, on the road to Moolh, and on the banks of the Jhurput Nuddi, was then in progress; and this was subsequently carried down to a depth of 218 feet. At this depth the progress made with the poor windlass power then at command was so slow, and the importance of determining the existence of coal elsewhere so much more pressing, that it appeared wise to stop this boring, more especially as there was nothing definite tending to

show the probability of a change in the rocks within a short distance. The tools were therefore moved elsewhere. The same section is now being proved by the steam boring machine, with the additional advantage of testing the upper rocks for a considerably greater thickness. The borings to the south of the town of Chanda, although it was evident that they had been put down altogether outside the outcrop or line where the known coal, if it occur, could be traced, were not resumed, as it seemed better to reserve these for the monsoon, when men could find good shelter in adjoining bungalows at a time when it would not be possible to remain with safety in tents. A systematic examination, therefore, of the country extending northwards from the known coal locality near Ghúgús was commenced, and has since then been steadily carried out. One additional borehole was put down between the pit sunk on the coal near Chandur, on the bank of the Wardha, and Nokora. This was due west of the village of Ghúgús, and was intended to supply the information which we had been prevented from obtaining in nearly the same place by the loss of the mineral lifter in the boring there. The object of this was to prove the actual amount of variation which the seams showed within this distance of three miles. This variation will be best seen in the accompanying details:—

Ghúgús North.		Ghúgús W. of village.		Nokora.	
	Feet. Inch.		Feet. Inch.		Feet. Inch.
Black shale ...	2 0	White sandstone ...	8 6	Black shale ...	1 6
Coal ...	3 0	Coal ...	3 0	Coal ...	4 0
Dark sandy shale ...	3 0	Shale mixed with coal	2 0	Sandy shale, with a trace of coal ...	2 10
Coal ...	3 0	Coal ...	3 0	Coal ...	3 6
Blue shale ...	5 6	Sandy shale and coal...	6 0	Dark sandy shale ...	5 4
Coal ...	12 0	Coal ...	4 0	Coaly shale with coal (bad coal) ...	3 6
Coal with iron pyrites	4 0	Coal and shale ...	9 0	Black shale ...	16 10
Coal ...	5 0	Coal ...	7 0	Coal, inferior ...	4 0
Shale ...	0 6	Sandy shale ...	10 6	Coal ...	5 0
Coal ...	11 0	Coal, good ...	9 0	Sandstone mixed with shale	5 0
White sandstone.		Coal, inferior ...	2 0	Very dark shale ...	3 0
		Coal, good ...	11 0	Dark sandy shale ...	2 10
		Sandy shale ...	0 2	Coal ...	21 8
		Coal ...	10 0	White sandy shale ...	0 2
		White sandstone.		Coal ...	13 0
				White sandstone ...	7 8

These borings are about $1\frac{1}{2}$ miles from each other; they are, beyond a shadow of doubt, in the same general beds and the same coals, whereas the very great amount of change in the thickness and character of the seams within this short distance is very evident. This is a very important point as bearing on the question of the economy of working.

Proceeding northwards, two boreholes were next put down at Telwassa, near the river Wardha. The most southerly of these was intended to prove the beds below the thick coals, and to ascertain, if possible, the actual thickness of rock in this Lower Barákar group. It was carried down to 192 feet, and at this depth, when a few feet more would certainly have reached the Talchir beds below, the mineral lifter was allowed to get jammed, and in attempting to raise it the steel valve box at the end was forced off and left in the hole, which was then abandoned. Some thin seams of very impure coal were found, as anticipated, just at the base of the series, but nothing worth working.

The second boring was fixed about a mile further to the north, on the east side of the river, and here coal was cut at 68 feet below the surface (of which 29 were surface soil); and the same series of beds as at Ghúgús again showing considerable variations were pierced. Altogether 41 feet of coal of varying quality were cut through in a total depth of 138 feet. (See Annual Report, Records, vol. III., pt. 1, p. 1.)

Another boring was commenced in the lands of the village of Gowarala, near Bhanduk. This was commenced, under a misapprehension of the instructions given, about half a mile from where it was intended to have been, but was useful, inasmuch as the cutters struck the Talchir rocks immediately under the surface clay, and thus effectually proved the absence of coal there.

Two other borings were put down at points intermediate between the Telwassa borings just alluded to and the pit near Chandur. These were near the villages of Belora and Nilja, both in Berar. Both proved the continuance of the same group

of beds of coal and shale, exhibiting quite as markedly as elsewhere the great and sudden variation in its character and subdivisions.

It was next desirable to prove that the coal found on the Chanda side of the Wardha, and there dipping to the west, did actually extend into the country of Berar on the west of the same river. To the south near the villages of Pipalgaon and Ukni small faults affect the continuity of the rocks, and, just opposite the point at which the boring in the Telwassa grounds had been put down, the series has been thrown down to the south of a fault which crosses the river. This has enabled some of the beds higher in the series of beds overlying the coal to be here preserved, and they overlap the coal beds to a greater extent than is seen in the adjoining and more denuded area. To test this part of the field, a borehole was put down, which, however, was not sufficiently far to the west, to avoid this great overlapping, and which, therefore, only touched the extreme outcrop of the coal beds. Another hole about a mile to the north proved very satisfactorily the entire continuance of the coal beds into the country on the west of the river or into Berar.

Tracing up the same series of beds further to the north, borings were put down in the lands of Konara. This was in the lower rocks (Barākars) and proved no coal; another boring was put down at Borgaon, also without success. Some three miles further north, a boring was put down on the Berar side of the Wardha at Goari (called also Agashi), but nothing but black coaly shales were found here.

These borings were all in the lower rocks. Still further on to the north in Chanda district, near the village of Majri, a boring was put down, first to the north of a fault which cuts across the beds there, with a view to proving that side, but without success, and then a second boring was commenced to the south of this fault, where the great overlapping of the beds was partially avoided, and here coal was found at 75 feet from surface, and gave a rough section of—

Dark shale, a little coaly	0·2.
Coal	51·8.

And having proved this thick coal, we proceeded no further. This thick bed, it must be remembered, is not all fair coal, but is split up with many beds of very varying qualities.

A boring, still in progress, was also put down near Nandori, on the Chanda side of the river, to the south of the large area of trap which covers many square miles of country near to and around Wurrora. This thickness of trappean rocks effectually conceals everything beneath them, and, looking to the great irregularity with which the coal rocks are overlapped, and the impossibility of drawing any sound conclusion either as to the place or depth below the surface at which coal might be found, fully justifies our putting the entire of this area out of calculation in estimating the extent or quantity of the coal in these Wardha river fields. A boring will be put down to the north of this large area of trappean rocks where the lower beds are again visible over a small area near Panjoorni, a village about six miles north-west of Wurrora, and probably near Wurrora itself. But with this exception there will be little use in testing the rocks further in that part of the field *at present*. It is not at all intended to assert that the coal group does not extend under a considerable part of this area, but if it does so extend the chances of finding it are so uncertain, and the depth at which it probably occurs so doubtful, and in any case so much greater than in adjoining areas, that, for the present at least, the coal, even if found, could not be worked to the same advantage or economy as elsewhere.

A boring has also been put in the Berar country well into the centre of the field and some six miles in a right line from the river Wardha. This was at a place called Rajur, which is near Naith or Nét, and about ten miles to the northwest of Wún town. This was simply intended to test the continuance of the coal under the upper rocks which cover the whole surface there. Up to the latest reports 15 feet of coal had been cut into there—quite sufficient to show satisfactorily that the rocks continue.

Two or three more borings will now prove the whole of this northern part of the field with perfect sufficiency, and with detail quite ample as a basis for commencing the actual work of raising coal.

To the south of Chanda, the sections at Balarpur, where good coal is visible at the water level in the river Wardha, in the territories of His Highness the Nizam or on the west side of the river, have been examined. It was concluded from this

examination that there was not much prospect of finding this coal extending into the Chanda district, as it had in all probability been very largely denuded or washed away, and its place now filled in with beds of great thickness of alluvial clay and sand, &c. Still borings were put down to test the fact, and the rocks were proved at both sides of a marked fault which crosses the section from north-west to south-east, the rocks being down-thrown on the east, but to what extent it was not possible to calculate from the limited exposure visible. These borings proved the existence of a few thin beds of coal, 1 foot to 1½ feet, but nothing worth working.^o The full examination of the northern part of the field had then become so much more urgent that the tools were removed there.

All the country south of Balarpur still remains to be examined. There is a certainty of coal occurring in the Nizam's territories in the area between the Peingunga and the Wardha, and a few borings are there required to test the thickness and quality of this coal. The area stretching from north to south throughout the district of Chanda from east of Wurrora to Bhanduk and Chanda, and southwards by Balarpur to the Wardha near Kirmirri, is all composed of rocks which belong to series above the coal. It is therefore possible that coal may be found to extend under these rocks and so cover a large area. But there is not a trace of these lower coal-bearing rocks *visible* anywhere along the line excepting close to Chanda town. And as the covering rocks dip sharply to the east all along here, a short distance only in that direction would throw the coal so deep below the surface that it could not be profitably worked in competition with the more accessible and more favourably placed coal elsewhere. This area ought to be tested by a series of well-selected borings at long intervals, and if coal be proved, as I fully anticipate it will be near to Chanda, the indications should be followed up carefully. There is no surface evidence whatever to guide the observer excepting there. I have already mentioned why the borings at Chanda had been deferred until the monsoon weather. But when they are commenced it will be needful to exercise a little more geological skill than had been shown before, for the holes which were bored were altogether outside or below the horizon of the thick coal which it was sought to prove!

No other group of beds containing coal in a workable thickness has been traced in the field, and none other probably exists. It has been shown that this group of thick beds of shale and coal maintains a constant horizon in the general series, that it is largely and irregularly overlapped by the beds which succeed it, and that with a great amount of variation there is still a constancy and continuance of the beds, which is satisfactory. In the former report I gave the results of assays of the coals raised from each successive foot in the boring at Ghugus; and I showed also what an admirable general index to the value of the coals such assays were. I have had the same done for the coals cut through at Telwassa, and I now give the results of these assays.† It

^o It is stated (Supp. Gaz. India, Jan. 15, 1870, p. 30) that 6½ feet of coal were proved at a depth of 120 feet from surface within half a mile of Balarpur!! None of the records of the borings bear out this assertion.

† ASSAYS OF COAL FROM THE CHANDA DISTRICTS.

From No. 1 Seam passed through at No. 2 Borehole, Telwassa.

Nos. 1				Carbon.	Volatile.	Ash.	Nos. 2				Carbon.	Volatile.	Ash.
1	...	...	...	30.9	29.8	39.3	18	...	...	...	44.4	34.6	21.0
2	...	...	...	42.5	32.3	25.2	19	...	...	...	48.9	30.6	20.5
3	...	...	...				20	...	...	...	49.4	30.4	20.2
4	...	...	...	41.6	32.8	25.6	21	...	...	...	50.3	33.4	16.3
5	...	...	...	34.2	32.3	33.5	22	...	...	...	44.0	31.8	24.2
6	...	...	...	35.1	26.7	38.2	23	...	...	...	50.4	31.8	17.8
7	...	...	...	36.9	26.7	36.4	24	...	...	...	50.2	33.0	16.8
8	...	...	...	33.0	25.4	41.6	25	...	...	...	46.7	32.6	20.7
9	...	...	...	42.4	31.6	26.0	26	...	...	...	51.4	30.6	18.0
10	...	...	...	39.1	29.4	31.5	27	...	...	...	51.3	30.6	18.1
11	...	...	...	43.9	32.3	23.8	28	...	...	...	51.2	32.2	16.6
12	...	...	...	46.2	33.4	20.4	29	...	...	...	53.0	30.4	16.6
13	...	...	...	45.4	33.8	20.8	30	...	...	...	52.3	33.4	14.3
14	...	...	...	43.8	34.2	22.0	31	...	...	...	52.0	32.0	16.0
15	...	...	...	45.9	36.0	18.1	32	...	...	...	48.2	30.2	21.6
16	...	...	...	41.9	34.0	24.1	33	...	...	...	43.8	27.4	28.8
17	...	...	...	37.1	32.2	30.7	34	...	...	...	50.1	30.6	19.3

will be seen that the composition of the coal raised here is very similar to that at Ghugus, and that, as a whole, the coals are of very second-rate quality. As shown by assay (Records, Geological Survey of India, vol. II., pt. 4, p. 99), the uppermost seam at Ghugus was good bright coal. And so it proved on cutting into it in the pit sunk not far off. But, like all the bright clean coals of this lower group, it also turned out very brittle and fragile, so that it would bear carriage badly.* The coals below that were very inferior, and much that has subsequently been furnished from the sinking at this pit for the use of the steam boring machine is scarcely worthy of the name of *coal* at all, with difficulty keeping up the fire, and not giving steam at all in sufficient quantity. The present assays show that this is the character of much of the Telwassa coal also. One thing is quite certain—that, as pointed out long since, any estimate of value based on the duty obtained from carefully selected coal from these will certainly give a false idea of the average value of the whole; while in any ordinary mode of mining the irregularity of these better beds, and the certainty that they will not continue for any great distance on the same horizon, will seriously interfere with the economic working of seams of such thickness as those we have shown to occur.

It remains to consider what is the amount of coal which may be considered fairly and economically accessible in these Wardha river coal-fields so far as examined—that is, in other words, in the country lying between the Wardha and Peingunga rivers in the south, and the general outline of the trappean rocks which cover everything on the north. If we take this estimate in two distinct portions, as referring to the east and to the west side of the river Wardha, we can then combine the two to get the general results. In Wun district, to the west of the Wardha, there may be estimated to be about 70 square miles of country under which the thick coal may fairly be presumed to extend, and will probably be found nowhere at a greater depth than 120 yards below surface. Now from this we must deduct a fair proportion for ground cut up by faults and disturbances, and so not likely to yield very profitable return from the working of the coal. If for this we deduct, say, one-third of the area, we will have 45 square miles yielding coal. The average thickness of coal established by the numerous trials may be taken as nearly 40 feet—that is, of coal, coaly shale and beds of varying character taken as a whole. As I have shown, a very large deduction from this must be made, and I believe that an admission of 20 feet would be not only a maximum thickness of workable coal, but be even too high a figure. But taking this as 20 feet of workable coal over 40 square miles, and assuming 600,000 tons as a fair amount of coal obtained from the square mile per foot in thickness, we have $600,000 \times 40 \times 20 = 480$ millions of tons of coal, of such quality as is available in East Berar, at depths below the surface not exceeding, say, 60 fathoms.

From No. 2 Seam passed through at No. 2 Borehole, Telwassa.

Nos.				Carbon.	Volatile.	Ash.	Nos.				Carbon.	Volatile.	Ash.
1	...	...	...	46.3	34.5	19.2	5	...	...	...	44.2	33.5	22.3
2	...	...	...	51.2	32.5	16.3	6	...	...	...	43.2	29.8	27.0
3	...	...	...	43.3	29.0	27.7	7	...	...	...	43.4	31.4	25.2
4	...	...	...	49.3	34.0	16.7	8	...	...	...	47.3	28.6	24.1

All burn similarly to the batch sent last September, *i.e.*, vigorously at first, but after the expulsion of the volatile matter only slowly down to the ash. The ash of all the samples (which has been preserved) is very similar, 25 grains mixed of Nos. 31, 32, 33 and 34 on being treated with sulphuric acid, hydrochloric acid and carbonate of soda left an insoluble residue of 7.5 grains.

On closely inspecting some of the samples some small fragments of a much superior coal may be perceived. From No. 28, which appeared to contain some of the largest of these, I picked out sufficient to make a separate examination. This gave the following result:—

Carbon	62.5
Volatile	34.5
Ash	3.0
	<hr/> 100.0

Passing into Chanda we have equally an area of about one and a half square miles near Ghugus (making the same allowance for disturbed ground as before), and an area of about five square miles in the north of the field. And, as the beds of coal are precisely the same, we take here the same estimate of thickness, *viz.*, 20 feet of workable coal. And, proceeding on the same data, we will have, therefore, in Chanda, $600,000 \times 6.5 \times 20 = 78$ millions of tons. This latter result fully bears out what was stated months since, that there was a very much larger amount of coal available in the "Assigned Districts" than in Chanda, in the vicinity of the Wardha.

We certainly ought not to estimate more than one-half of these quantities as *good* coal.

While engaged in the practical exploration of these coal-fields, I had frequent applications from the Engineers employed in making trial sections and estimates for a proposed line of railway for information as to the position, quantity and quality of the coal, and as to the general question which would be the line best adapted to meet the requirements of the case, so as to facilitate the transport of this coal to the existing lines of railway to the north and southwards to the Godavery. It was also asked that the opening up of the cotton country should be borne in mind. Every information was readily afforded from time to time as new facts were ascertained.

But this necessarily led to the consideration and discussion of the best direction in which to carry a line of railway with these avowed objects. The intended point of junction with the Bombay and Nagpur line was stated to be the Wardha station, and it was at first assumed that the line *must* go to Chanda or through the Chanda district. Long since I pointed out that it required but a very trifling acquaintance with the country to show that a much larger area of coal existed in Berar than in Chanda, and that it was simply misleading opinion to speak of this coal-field as the Chanda coal-field. I also had occasion to show that the pit which was being sunk to the coal near Ghugus was quite unnecessary if it were only intended as a means of trial of the coal, and that if intended as a means of working the coal afterwards it was injudiciously placed, and must be for years to come superseded by others more conveniently located. Such general considerations, however, based on a view of the field at large, were of little avail as compared with "practical" views, and the work was hastily pushed on. It is to be hoped that the fact that the Geological Survey have since then pointed out the exact localities for borings, and have thus proved the existence of coal within a few feet of the surface, where, they were told, "such trials were only foolish blunders," evincing an "utter ignorance of the teachings of mining," and were "at places where it was impossible that coal could exist," will be a warning to future inquirers in their researches, and that they will at least try to make themselves acquainted with the geological structure of the area they are about to examine before they trust to preconceived notions, or permit themselves to be swayed in their investigation of facts by personal wishes or local tendencies.

The facts stated above are sufficient to show that if the object of a proposed line of railway be to accommodate the largest amount of *coal* traffic there cannot be a shadow of doubt that that line of railway should go right into the middle of the Wun district.

The consideration next in importance to the establishment of a free communication with the coal-fields was stated to be "the opening out of the Hingunghat cotton country."

But what is the Hingunghat cotton country? By much the larger portion of the cotton which now finds its market at Hingunghat, and all of which is shipped or sent away as Hingunghat cotton, is not grown in the immediate vicinity of Hingunghat, but is brought from very considerable distances. Previously to the opening of the Nagpur branch of the Great Indian Peninsula Railway a large share of its supplies was drawn from the country to the north and north-west of the place, and much excellent cotton was brought to Hingunghat even from Arwee, 50 miles to the north-west, and from the districts in that direction. All

this cotton now finds its natural outlet at the nearer marts of Wardha and other places on the line of railway, and scarcely a load, as might have been anticipated, crosses this new line of communication to reach Hingunghat on the south. The country lying between Hingunghat and Wardha must also naturally seek the nearest markets for its produce. For the Hingunghat market, therefore, the supplies must now be derived from the south, south-east, and south-west. But to the south-east, and partly to the south, on the east of the river Wardha, with the exception of a small area near to the town, the country is almost an unbroken jungle for hundreds of square miles. The so-called "southern road," although it passes very near to the large towns of Wurrora and Bhanduk, scarcely touches even isolated patches of cultivation for its entire length from near Hingunghat to near Chanda, and again south and south-east of Chanda it sweeps for mile after mile through dense jungle. This belt of forest jungle is in places 30 to 40 miles wide from east to west, and not only does this immense area not yield any cotton at the present, but it is of such a nature that no reasonable hope of its ever producing cotton profitably can be entertained. The surface deposits are derived from the decomposition of coarse ferruginous sandstones and other silicious rocks, which yield a dry, thirsty, sandy soil, in which the cotton plants cannot flourish. Between this immense range of forests, yielding little but mere jungle produce, and the Wardha river there is a belt of open ground varying in width from two to ten miles, over which are spread thick deposits of alluvial clay, and occasionally regur in which a fair amount of cotton is grown. But, as shown, this area is very limited, and the amount of produce must be equally so. On the other hand, to the west of the Wardha the country is open and cultivated, and produces largely of cotton over an area very many times the extent of the possible cotton-yielding country of Chanda. And besides this large area in Berar itself, immediately adjoining to it on the south is the rich and well-known district of Edlabad, in His Highness the Nizam's territories, from which, even at present, with all the difficulties of long land carriage (at least 60 miles to Hingunghat) and heavy rivers to cross, by much the most valuable portion of the "Hingunghat cotton" is obtained. I was led to these considerations myself while engaged in the careful examination of the country (and few persons, if any, see the country with the same detail that geologists do), but I have also been confirmed in this view by those actually engaged in the cotton trade, and who, therefore, were personally able to ascertain the facts. Mr. F. Curwen, agent for Warwick and Company, by far the largest dealers in Hingunghat cotton, stated to me on inquiry that he had given particular attention to this important question of *where* the cotton which came to that market was grown, and had ascertained that taking the ordinary annual sales at Hingunghat as about 30,000 bales not more than 2,000 out of that quantity were the produce of land near the town, and to the south and south-east of it on the left side of the Wardha river, by far the largest portion and the best quality coming from the Nizam's territories (Edlabad, &c.,) and from East Berar.*

Equally, therefore, if the object be to open out this valuable cotton-yielding country by a line of railway, that railway must be carried through East Berar and to the west of the Wardha.

At present the route commonly taken by the carts bringing cotton to Hingunghat is through Wun, crossing the Wardha river to the south-west of Wurrora, and, passing through that town to Hingunghat. In this way it is "that strings of cotton carts may be seen making their way to Hingunghat," but a very small portion indeed of their loads is derived from Wurrora or Chanda, or any place on the east of the river.

These facts also account for the small and "not increasing" cotton trade at Wurrora, which is too near to the larger and more important mart of Hingunghat, and too far from the main source of the raw cotton, to absorb much of the trade. There can be no doubt that if once railway communication be opened up into the

* The Tehsildar of Wun reports that the ground under cotton cultivation this year was 28,177 acres: the average produce for each acre was 76½ lbs., the total produce 1,077,770 seers=9,000 bojas, or 18,000 guttas (bales). Besides the above, about 12,000 bojas or 24,000 guttas are carried through this taluq to Hingunghat from His Highness the Nizam's territories, from Rajur, Manikgur and Edlabad taluqs.—April 1870.

Wun and Edlabad country new marts and presses for cotton will rapidly spring up in more immediate proximity to the places of growth of the crop, where the risks of injury from exposure on open carts and from delays in bringing to sale will be reduced to a minimum. And in this point of view it may be well deserving of consideration whether the necessarily reduced trade of Hingunghat will then repay the cost of construction of a branch line of railway.

Other special objects to be gained by the construction of a branch line of railway were stated to be the utilization of the timber forest of Aheree and the connection of the Godavery navigation with Central India. To accomplish either of these objects, it is essential that the proposed line should be carried as far to the south as the bottom of the third barrier on the Godavery river, or to the town of Mogeli, or rather Talye or Talawye, on the west, or of Dewalmurri, on the east, of the Pranhita. To accomplish this, it was proposed to carry on the line, which it was assumed would go to Chanda town, to Kirmirri, where a sound rocky^a foundation for a bridge would be obtained, and crossing the Pranhita there to proceed to Mogeli, on the opposite or west bank of the river. How the timber of Aheree, which lies away from the river on the east side, was to reach the railway on the west I know not. But there is little need to discuss this, for the surface of the country to the south of Chanda town offers physical difficulties which will prevent any economical construction of a line of railway there. The line alluded to above, if carried into East Berar, could, on the other hand, be prolonged to Mogeli or Talye, without meeting with any equally serious difficulty. It could cross the Peingunga above the junction of the Wardha, where the body of water and the cost of bridge would not be one-half of what it is at Kirmirri, and where it would be close to coal.

Exactly the same arguments suggest themselves if we consider the connection of the Godavery navigation with Central India, to accomplish which the main point would of course be to obtain the cheapest and best road to the bottom of the third barrier. But to these may also be added the fact that there is every prospect of a considerable area of coal in the Nizam's territories between the Peingunga and the Pranhita, all of which would be economized by a line of railway on that side of the Pranhita, but would be useless or nearly useless if that communication were carried out on the opposite bank, where no coal occurs.

Any advantages anticipated from the introduction of the Wardha coal into the southern parts of the Peninsula (Madras, Hyderabad, &c.) would be common to either line. But these may be, I think, put out of present consideration altogether. If, on further investigation, the coal known to occur near Dumagudium and to the south of that place prove abundant and of fair quality, there would be no hope of contending with that field for the supply of Madras or elsewhere to the south. And it is greatly to be regretted that Colonel Haig was not supplied with the means of investigating this very important question during the present year. And in any case coal goes occur many miles to the south of the Chanda coal in the Nizam's territories, which is much more conveniently placed for meeting any demands from the south.

Other considerations have been introduced, incidentally as it were, which may be just alluded to. "The rich iron ores of Chanda would before long," it is said, "be smelted at foundries near the coal-field." Whether such a rapid introduction of iron works can fairly be looked for under any circumstances is more than questionable. That rich iron ores do exist in the Chanda district is well known, and equally that they exist in practically exhaustless quantity (there is a whole mountain nearly a mile long of magnetite in one place), but these ores do *not* occur near the coal-fields. There is also hæmatite ore in the Yanak hills, near to where the line of railway, if carried down there, ought to cross the Peingunga, and near to coal.

In all these remarks I would say that I have purposely avoided entering on

^a It is a singularly perverted misapplication of a tolerably well-known geological term to speak of the widespread area of crystalline rocks which are exposed at Kirmirri and to the east as a "gneiss dyke." The only real use of such special terms is to convey accurate ideas without the necessity of long descriptions, but if employed when their meaning is not known they must have exactly the opposite effect, and must lead to confusion and obscurity.

any question of the comparative facilities or comparative economy of construction of any such line. Some years' experience in laying out and making railways might justify my discussing these points, but I have known so many instances of absurd mistakes as regards sections and estimates for such works based on a mere inspection of the ground, or put together on the information of others only, that I would not venture to offer an opinion without actual survey. Nor is there any necessity to do so. Trial sections have, I believe, been taken over both the lines referred to, and I am much mistaken if these sections have not shown how entirely below the mark the first estimate of the cost was. But *cæteris paribus*, I merely wish to assert that a line of communication direct from Wardha into East Berar will accommodate any likely traffic in coal, and will open out the cotton country infinitely better than a line direct to Chanda or through the Chanda district.

I cannot close without noticing how much, in my opinion, this matter has been obscured by the unhesitating adoption of the term of the Chanda coal-field. It so happens that just there the territory immediately adjoining is under a separate Government, and belongs to a different jurisdiction, and the very existence almost of the Berars has been scarcely alluded to in discussing lines of communication which were to be designed for the benefit of the country at large. But geological formations are not coincident with political boundaries fixed for the convenience of man. Such examinations acknowledge no fiscal limits; we have but to ascertain the facts carefully, and then to state them freely, convinced that any attempt to force the teachings of those facts into a preconceived groove of local tendencies must fail sooner or later, as does every such effort to run counter to the laws of Nature.

Whether even the large extent of coal proved to exist in Berar, of a quality such as it is shown to be, and varying so much as it does at different points, will repay the charges for construction of a line of railway, is, I think, worthy of much closer consideration than it has yet received. The calculations which have been gone into in great detail, although correct in themselves, are based on data which even the few weeks that have since elapsed show to be fallacious. English coal was taken as costing at Bombay *on an average* Rs. 30 per ton; at Nagpur Rs. 60 to Rs. 70. And it was calculated, even allowing for the use of two tons of local instead of one of English, that at any place east of Bhosawul a saving of £1 6s. or Rs. 13 per ton would be effected by the use of Ghugus coal. The price of English coal at Bombay is now, April 1870, Rs. 14 per ton, that is, less than one-half the price calculated, or a difference in first cost greater than the estimated saving!! I do not believe that this rate can be maintained, but it is quite possible that the continued use of the Suez Canal will tend to reduce very considerably the average cost of English coal at Bombay.

This one item alone would totally upset all the calculations of cost, of profit, and of traffic even. And before it can be asserted that a branch line of railway to the Wardha river coal-fields will even repay interest on the cost of its construction, vastly more careful and more widely gathered statistics both as to cost and amount of traffic than have as yet been hastily procured, or at least published, must be sought for.

T. OLDHAM.

May 1st, 1870.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. IV., Part 2;
1871, May.)

NOTE on the Plant-bearing Sandstones of the Godavery Valley, on the southern extension of Rocks belonging to the Kámthi group to the neighbourhood of Ellore and Rájámandri, and on the possible occurrence of Coal in the same direction; by WILLIAM T. BLANFORD, Deputy Superintendent, Geological Survey, India.

Recent explorations in the Godavery valley below Sironcha, and in parts of the adjoining country, have enabled me to ascertain that a very large area is occupied by representatives of the various formations which have been described in Bengal

and the Central Provinces under the names of Panchet, Damuda, and Talchir. The occurrence of sandstone in the bed of the Godavery and along its bank throughout a large portion of the river's course below Sironcha was, I believe, first made known by Mr. Wall, in the *Madras Journal of Literature and Science*, New Series, Vol. II. It now appears that sedimentary beds belonging to the Damuda group and its associates extend, apparently without a single break,^o from the neighbourhood of Mangli and Phizdura, 34 miles in a direct line north-north-west of Chanda, to Lingala on the Godavery, just above the top of the first barrier and 14 miles above Dumagudiam, or throughout a distance of 200 miles. A break then occurs which extends along the river for about 25 miles. The sandstones reappear at Raigudiam, about six miles below Bhadrachallam, and thence continue along the south or right bank of the river with one brief interruption for about 15 miles, terminating a little below the village of Madavaram. These beds, as will presently be shown, extend far to the southwards.

Metamorphic and Vindhyan rocks occupy the bed of river at the second and third barriers and for some miles below them; the remaining portion of the Pranhita and Godavery are in the soft sandstones and the associated beds, and at both barriers a continuous belt of the later sedimentary formations on the right bank of the river, though at a distance from its course, unites the areas occupied by the same rocks in the river's bed.

Throughout the whole valley of the Pranhita and Godavery† below the third barrier at the spot where the Wardha and Wainganga unite to form the first-named stream the area occupied by the plant-bearing sandstones on the left (north and east) bank of the river is but trifling, whilst from the right banks these beds extend for a great but hitherto unascertained distance into the little-known tracts of the Nizam's territories belonging to the Ramghir and Kamarmet Sircars, and perhaps into Warangal.

In the same manner the sandstones below Bhadrachallam occupy an area not exceeding 8 or 10 square miles north of the Godavery, while to the south they cover a tract of country 25 miles in breadth from east to west near the river, and gradually becoming broader till it is at least 50 miles across. It extends from the Godavery near Bhadrachallam till it is lost, 60 miles further to the south, beneath the coast alluvium in the neighbourhood of Ellore. To the south-east it stretches nearly to Rajamandri, extending to the banks of the Godavery near Polavaram, below the great gorge in the metamorphic rocks through which the river runs. At Pangadi, near Rajamandri, the sandstones are covered up by the bedded dolerites of the Deccan trap, just as, 300 miles in a direct line to the north-west, the same sandstones, in the districts of Chanda and south-east Berar, disappear beneath the same traps on the eastern verge of the great basaltic area of the Deccan.

The proportion of the enormous extent of sedimentary rocks in the valley of the Godavery and its neighbourhood which is occupied by the valuable coal-bearing beds of the Damuda group appears, so far as research has hitherto extended, to be extremely small. Here and there along the boundary of the sandstone tract beds are found with the mineral character of the Barakar group of Bengal. Such is the case near Chanda, and the same beds occur at Lingala, above the first barrier, and at Madavaram, below it; and in each case where these rocks have been observed, coal beds, sometimes of little or no value it is true, have been found associated with them. It is highly probable that further examination will show the presence of these valuable beds in several places where they have not hitherto been detected, but the search is difficult, because the surface of the country in which the sandstones are found is greatly concealed by a thick covering of sandy clay and sand, derived from the disintegration of the soft argillaceous sandstones.

The lower Panchets of Bengal, to which the name Panchet should perhaps be

^o This cannot be stated positively as yet, some portions of the ground not having been examined. But no break exists exceeding a very few miles in extent.

† The valley of the Godavery proper above the junction of the Pranhita is geologically almost unknown. It is only certain that the greater portion consists of trap.

restricted, appear to be represented by rocks of similar mineral character in the Godavery valley, but further examination of these beds is necessary in order to determine their position in the series, and their relations to the limestones containing fish remains, which are met with in several places near Sironcha.

The Talchirs, at the base of the great series, precisely resemble their representatives elsewhere, but the unconformity between them and the Damudas appears to be greater than usual.

These formations, the Barakars, Panchets, and Talchirs, together do not take up a tenth part of the area occupied by the sandstones. The great bulk of these consist of coarse argillaceous sandstones and grits of no very marked character, with hard ferruginous bands. The few fossils found in them, chiefly *Vertebraria*, *Calamites*, and *Glossopteris*, are identical with Damuda forms, but the mineral character of the beds taken as a whole is always slightly and sometimes remarkably different from that of any true Damuda beds, as found elsewhere, while the fossil plants seem to preclude the idea of associating these rocks with the Panchets, the flora of which, so far as it is known, is very different. One of the most striking distinctions between these beds and the Damudas proper is the absence of coal and of any carbonaceous matter in the former, even the plant remains having lost their carbon and existing as mere impressions. It appears, therefore, desirable, both for scientific and economic reasons, to apply a distinctive term to these beds, restricting the name Damuda to the group or groups which usually contain coal. For these reasons, I proposed, some years since, the name of *Kamthi* beds for some rocks near Nagpur which belong to this group. The name has since come into more general use on the Survey, and it has become necessary briefly to repeat the reasons for first adopting it. The Kamthi group is intermediate in position between the Barakar and Panchet groups.

So far as their geological examination has progressed, the immense mass of argillaceous sandstones which occupy so large a proportion of the country in Chanda and South-east Berar appears to belong to the Kamthi group. The same is probably the case with the sandstones of Sironcha and those on the right bank of the Godavery, which have, however, hitherto remained unexplored. The beds extending south of the Godavery, towards Ellore and Rajamandri appear to me to differ in no important respect from the rocks in Chanda. Sections, except on the sides of hills, are unusually rare, precisely as in the more northern area, and the great mass of the rocks consists of white and brown argillaceous sandstones, grit, and conglomerate, with so little marked mineral character that they might be either Barakar, Kamthi or Panchet. On the Godavery below Bhadrachallam it is very difficult to draw a line between the Damuda and Kamthi groups.

But in the neighbourhood of Ellore and Rajamandri the sandstones are frequently variegated in a peculiar and characteristic manner. They are associated with numerous hard bands of ferruginous grit and compact red and yellow shale. In one instance sandstone was found with a peculiar semi-vitreous texture, which is very characteristic of some beds in Chanda and Berar. All these characters lead unmistakably to the conclusion that these rocks are the representatives of the Kamthi beds of Nagpur and Chanda.

Let it not be supposed that this conclusion is a mere abstract scientific matter, interesting perhaps to geologists, but of no importance to the world in general. In reality it involves a most serious economic question. It is quite unnecessary to remark that the discovery of coal in the Madras Presidency is a great desideratum. Hitherto, despite much research, neither coal nor the rocks with which coal is associated in India have been met with in any part of the country south of the Godavery. The tracing, therefore, into the Madras Presidency of sandstones belonging to the great series of which the coal-bearing beds of Bengal form a portion is of great interest and importance, because there is a possibility of the coal-bearing beds being associated with them.* The greater part of the working

* So far as I am aware,—I am writing without means of reference, and may be mistaken,—the occurrence of these sandstones near Ellore and Rajamandri has not before been noticed.

season of 1870-71 has been devoted to the very important boring for coal on the Godavery, and I have been unable to give nearly sufficient time to the examination of the Ellore and Rajamandri country to enable me to ascertain with certainty the presence or absence of Damuda beds. Indeed, the surface of the rocks, although much better exposed than is the case a little further to the north, is so far concealed that it will probably be necessary to bore in order to determine this question. But although there is fair possibility of coal-bearing rocks being found I could not positively detect their presence anywhere, and in one or two places the base of the Kamthis was seen resting upon the metamorphic rocks, all beds of the Damuda group being wanting.

In conclusion I may briefly describe the limits of the Kamthi sandstone area near Ellore and Rajamandri. The northern boundary runs nearly east and west from Raigudiam, on the Godavery, to Paluncha. There it turns sharply to the south, and the eastern boundary extends thence at first south, then south-east to Chintalpudi, 20 miles north by west of Ellore. Thence, after making a sweep to the westward, the boundary runs to the south, passing just east of the large town of Nuzed (Noozaid or Noozudoo), whence it turns south-west, and finally reaches the alluvial plain of Ellore near a village called Krishnawaram, at a spot nearly 20 miles east by north of Bezwaru, and 16 miles west by south of Ellore.

Along the southern part of this boundary, near Nuzed, the base of the sandstones is well exposed in several places, and, so far as I was able to examine, there was no trace of Damuda rocks. Still, further and closer examination is desirable before the same conclusion can be arrived at for the whole country.

The Kamthi beds stretch along the edge of the alluvium from the point already mentioned east by south of Ellore to the Godavery, trap intervening near the latter river at Pangadi, as already mentioned. The beds are in general flat, or dip at low angles.

The eastern, or rather north-eastern, limit of the sandstone area extends from the Godavery at Pondigul, 12 miles below Bhadrachallam, through the western portion of the mass of hills which culminate at the trigonometrical station of Rajgota. The boundary passes a few miles east of Ashraopetta, and thence trends nearly due east in the direction of a point on the Godavery a little south of Polavaram. Whether it crosses the river has not been ascertained.

This boundary also has only been most cursorily examined, and it is impossible at present even to guess whether Damuda beds occur along it or not. They are found on the north close to the Godavery, but they appear to be wanting in the hills a few miles further south. Some sandstones were seen near Ashraopetta which had the appearance of Barakar, but it should be repeated that, after much experience of the two formations Barakar and Kamthi, I confess myself often unable to distinguish between the sandstones which usually form the bulk of both groups. I can only conclude that further examination of both boundaries, first geological and afterwards by boring, is requisite. This is especially a case in which research, to have any chance of success, must proceed on purely geological principles.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. V., Part 1; 1872, February.)

DESCRIPTION of the Sandstones in the neighbourhood of the First Barrier on the Godavari, and in the country between the Godavari and Ellore; by WILLIAM T. BLANFORD, F.G.S., Deputy Superintendent, Geological Survey.

The rocks near Raigudem differ in no way from those further to the east, nor do they require any description. Coarse sandstones and grits with conglomerates and ferruginous bands are alone exposed. Rocks are seen, for a short distance, in the Pamaleru stream, from its confluence with the Godavari to just above Genkatapur, rather more than a mile in a direct line; thence none occur all the way to Pagalapali. In the Rala Vagu,

which comes from Gundalpad and joins the Pamaleru near Burgawai, much felspathic sandstone and conglomerate is exposed, of the usual character with a gentle north-west dip. In one spot nearly a mile from the junction of the two streams some pink and white argillaceous stone is seen in the Rala. At the junction with the metamorphics to Gundalpad no Talchirs are found. The bottom bed of the sandstones seen in the stream is soft and felspathic, grey in colour and conglomeratic with the usual Barakar character, but in a hill immediately to the south coarse loose-textured pink and white sandstones are seen which precisely resemble Kamthis.

The valley which debouches from the mass of hills to the eastward at Gundalpad consists of metamorphic rocks, like all the more eastern hills, including the lofty mass of Rajgota. But the hills immediately north and south of the valley consist of gritty sandstones. Their eastern boundary passes nearly under Rajgota, and is continued in a south-south-east direction for some miles; then it turns more to the eastward. From the peak of Rajgota a fine view is obtained over the sandstone country; the jungle-clad hills to the south-west are seen extending away for many miles, and the rocks of which they are composed have a low tolerably uniform dip, usually from about 2° to 5° , but occasionally rather higher, to the west and west by north. It is evident with this dip and the direction of the boundary that the beds near Ashraopetta ought to be rather lower in the series than those near Gundalpad; the former may represent some of the rocks seen near Amravaram. Their appearance, however, does not support this view, but it should be added that they are very poorly seen, and that there was but little time for their examination.

The sandstone south-east of this, along the north-east boundary of the sandstone area, presents few points of interest. As a rule, the rocks, except where they rise into hills, which is not often the case, are greatly concealed by sandy clay, forming a semi-alluvial plain. The hills, so far as they were examined, are of the usual grit and conglomerate, which forms so large a proportion of the field. The boundary is but an approximation laid down by a very cursory survey, and closer examination will doubtless induce its modification. In only one place was any rock seen which had a distinctly Barakar character. This lies south of the village of Bedanol nearly due east of Ashraopetta, in a stream, and even in this case the rock was only white felspathic grit, unaccompanied by shale or any other typical Damuda formation.

Leaving the eastern or north-east boundary for the present and returning to Raigudem, a few words will suffice to describe the rocks near the northern boundary of the sandstone area. The rocks to the west and south-west of Raigudem are the usual sandstones, grits and conglomerates, more or less ferruginous and possess no distinctive character. To the south stretching away to Pagalapali and Mulkalapali is a great sandy plain of jungle in which very little rock occurs. Scarcely any rock, too, is seen in the Kinaraswami stream.

North-west of Dantalbora there is a considerable tract occupied by Talchirs. They do not run along the boundary of the sandstones, and it is impossible to say whether they extend as far as the boundary, or whether they are separated everywhere by a belt of metamorphics, as no rocks whatever are seen near the Kinaraswami stream about Dantalbora. Metamorphic rocks are, however, well seen at Gadagudanpali, at Koigudem north of Sompali and north of Sangam, and they occur in the Kinaraswami, or rather in its tributary called the Morair, south of Sangam, so that they probably surround the Talchir area in the manner represented on the map. The Talchir beds consist chiefly of the usual shales (mudstones), but just north of Gadagudanpali some very fine compact sandstone is met with, which has been quarried to some extent for the anicut at Damagudem. The northern boundary of the patch of Talchirs is obscure, the country being much covered by sandy alluvium.

The mode of occurrence of the Talchirs not only in this instance, but also on the outside of the sandstones elsewhere, as on the Tal, at Dumagudem, around Narsapur, and again on the Ganar stream, and their want of connection in all these instances with the Damudas, point to an unusual degree of unconformity between the two groups. In the present instance the higher sandstone beds near Dantalbora are believed to be Kanthis, but on the Ganar stream Damudas occur, and there is the same absence of Talchirs at the base of the plant-bearing series, and their presence in an isolated area outside the boundary.

The range of hills forming the boundary of the sandstones from Paluncha to Sitarampur fort consists mainly of grit. On the hill fort of Sitarampur, forming their eastern extremity, some fine red and yellow compact shale of unmistakably Kanthis character occurs. It is not clear whether the boundary here is a fault or not, but apparently it is natural. The beds dip south close to the boundary, but north on the hill forming the old fort.

From near Paluncha the boundary turns to the northward, and a belt of sandstones, 6 or 7 miles broad, west of Paluncha connects the tract which stretches to the southward towards Ellore and Rajamahendri with that which extends to the Godavari near Managur, and thence occupies a large area to the north-west and west. The country was merely traversed rapidly and the boundaries very roughly sketched in. All the sandstone seen as far as Alapali and Markod is similar to that near Paluncha, and the same is found from Markod for fourteen miles in a direct line eastward to Buga. From a high hill two or three miles west of Markod all the hills in the wild jungly country, for at least ten or twelve miles west and south-west, were seen to be evidently of sandstone; beyond that distance are ranges the outline of which is less definite, but they are tolerably flat-topped and of no great height. For several miles north and north-west of Markod similar sandstone ranges appear. (Markod is north of the Atlas Sheet 94.)

Coal has been found in fragments in the Kinarswami stream near Alapali, and comes from the hills to the north-west (see Records, 1871, p. 82).

Two or three miles from Ragundla, north-west of Paluncha, on the road to Kunaram, chipped implements of the Abbeville type were found in such abundance that 40 were picked up in a quarter of an hour within an area 50 yards square. The spot is in jungle and cut up by small ravines. Many of the implements are of white quartz. Besides those collected, nearly as many more must have been discarded as ill made and imperfect, so that the locality was probably a place of manufacture.

The south boundary of the sandstone area, running west-north-west from Gharibpet, was only crossed in one spot, near Karkonda. The hills near Gharibpet consist to the west of garnet and kyanite schist,* the last-named mineral occurring in unusual abundance and frequently of good colour. The eastern portion of the same little group of hills is composed of sandstone and grit of the usual character.

South of this the boundary can only be traced at intervals, much of the country being covered with thick sandy soil. The metamorphic rocks, which consist largely of a compact hornblendic gneiss, approaching diorite, are more frequently exposed at the surface than the sandstones; the latter are rarely seen except in the hills, which are dotted over the country, and which consist of felspathic grit, often conglomeratic. Further east within the sandstone area there is the same paucity of sections; a few fragments of ferruginous grit occur here and there, or quartz pebbles scattered over the surface indicate the existence of conglomerate, but sections are exceedingly rare. In all the grits fragments of clay occasionally occur.

* This rock was seen and described by Voysey.—J. A. S. B., ii., p. 399.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

The hill east of Unaparedipali is of the usual coarse felspathic sandstone, with bands of ferruginous grit (the Kamthi iron bands) and compact red shale: some pink and lilac shale also occurs. Hills near Unaparedipali. Here again the rocks have a strongly marked Kamthi character. The general dip of the hills around this appears to be very low, not more than 2° or 3° to the eastward. About four miles south of Pentlam, on the road to Kistnavaram, in a nulla, a great thickness of the red purple and yellow compact shale is seen, dipping east or east-north-east.

At the western end of the tank at Krishnavaram is some very calcareous rock, apparently a schist strongly impregnated with carbonate of lime. This must be just outside the sandstone boundary which probably runs through the tank. A hill east of Krishnavaram (probably Kistnavaram), and another further south, are of precisely similar grit to that of which the other hills to the northward are formed. The dip is very slight, if there be any. Near Krishnavaram.

From this to Vaimsur, five miles further south, there is undulating country with a sandy soil, through which no rock appears. At Rajerla metamorphic rocks occur in a well, and there is a hill of crystalline rock just east of Vaimsur, but (partly from want of time for more careful examination) no boundary was traced from near Kistnavaram to Chintalpudi. Near this town metamorphics appear rather more than a mile to the south on the road to Ellore, whilst at the town itself sandstone is seen in several wells. It is felspathic, and the colour is variegated. Thence the boundary makes a curve to the eastward (not examined), and then runs with a rather irregular outline for about ten miles to the westward south of Chatrai.

Around Chatrai (Chataroye of map) the metamorphics are well seen, and to the south of this the boundaries of the sandstone are fairly exposed. There is but little jungle, and the country is mostly open. The bottom beds of the sandstone series are admirably seen in several places, for they rise into low, flat-topped hills, the bases of which are sometimes of metamorphic rocks, upon which the sedimentary formations are seen resting. This is the case at Ramakapetta, north of Nuzed (Noozudoo or Noozeid of the map), and at Ravacharia, to the south. Here the lowest beds of the sandstone consist of white, pink and brown felspathic grits, and hard dark reddish-brown ferruginous bands, more or less gritty and conglomeritic. A little further north, as on the hill near Somavaram, and throughout the rises east and south of Nuzed, similar beds are associated with variegated felspathic sandstone, fine white argillaceous sandstone, and red and yellow hard compact shale. All these beds are typically Kamthi in their character,—perhaps they resemble the beds at Sironcha more than those of Chanda and Nagpur, but they differ greatly from the Damudas of Lingala and Madavaram. Country near Chatrai and Nuzed.

The dips are generally low, often nearly or quite horizontal, as in the hills west of Sepudi. The hills are depicted on the map of absurd height, judging from the hill shading; in reality they are low, flat-topped rises, rarely exceeding 100 feet above the plain. The form as represented is also frequently inaccurate in detail. Sandstones near Nuzed.

That the beds are Kamthis, and not of higher horizon as Panchets, is shown by the occurrence of *Glossopteris*, some leaves of which were found in sandstone dug from a well close to Somavaram.

The base of the sandstones is not seen everywhere,—for instance, around the tank north of Somavaram and thence to the eastward,—and there is of course a possibility of Damudas occurring in such places. Wherever the basement beds were seen, however, they were Kamthis, so far as could be inferred from their mineral character, and there was the usual want of carbonaceous shales and other indications of coal.

The metamorphics were not examined. Some limestone occurs in the crystalline rocks both north and south of Chatrai (Chataroye), but it looks impure. West and south-west of Nuzed the metamorphic rocks form fine masses of hills. Metamorphics, limestone, &c.

Some iron furnaces at Chitapurn, near Comanaram, and others subsequently seen, are cylindrical, of greater bulk than usual, being about 4 feet in diameter and the same in height, surmounted by a cylindrical chimney a foot or 18 inches in height. The ore is decomposed ferruginous stone abounding in iron peroxide, and probably derived indifferently from the surface of the sandstone and of the metamorphics. The blast is obtained from hand bellows of a larger size than usual, each worked by one man, two bellows to each furnace; the outturn from each furnace appeared to be considerable, 60 or 70 lbs. per diem from sunrise to sunset. It is refined by the same men, not sold in the impure state.

Iron furnaces.

The low rises south of Golapali are covered with the remains of old diggings, said to have been diamond mines. I could not learn how long a time has elapsed since the works had been abandoned; an old man, at least 60 years of age, told me there had been no mining within his recollection; and the pits have all fallen in, the whole country being covered over with thick bush jungle. The diggings appear not to have been in the sandstone itself, but in the very gravelly laterite which rests upon the sandstone, but the surface is so much broken and altered by the pits that it is difficult to say. The workings evidently cover a very considerable area, and are part of the old diamond mines of Golconda,^o the ancient name of the hill range north of the Godavari and the adjoining country.

Old diamond mines at Golapali.

Similar low, flat-topped hills of Kamthis extend across the country north of Ellore, becoming gradually less distinct to the eastward. The character of the rocks is precisely the same as near Nuzed. South of the low rises there is a belt, generally three or four miles broad, of undulating grounds, very sandy, and evidently derived from the waste of the sandstone, which is probably but a short distance below the surface. Without closer examination it is difficult to say whether the sandstones can be sufficiently traced in this tract to justify the drawing of the alluvial boundary to the south of it, but probably they can. Thence to the sea all is believed to be flat alluvium.

Rocks north of Ellore.

The hills scattered over the country north-east of Ellore appear to be a continuation of the same Kamthis. Hard ferruginous gritty bands are common, and fragments of them are conspicuous on the surface. In the hills near Kunlacherow, 16 miles north of Ellore, *Vertebraria* occurs in a grey compact hard stone which appears to be calcareous.

Country north-east of Ellore.

The hill just south of Tandkalpudi consists of fine hard variegated sandstone, with something of the peculiar vitreous character and conchoidal fracture typical of particular bands in the Kamthi beds at Bokhara, near Nagpur, the tank of Talaigaon, near Mangli, and on Malargar, west of Chanda. The dip is to the east and very low, not exceeding 2° or 3°.

South-east of this there is much laterite stretching away to the borders of the sandy alluvium. As a rule, however, laterite is but poorly developed in this country, and there is no well-marked belt of it along the edge of the alluvium as is the case to the northward in Orissa.

On the hills east of Ragavapuram there is a very low south-east or east-south-east dip of about 1° or 2°. Twelve miles further to the east-north-east, and north of Gopalapuram, the dip is south or south-south-east. The beds seen in the latter locality are very nearly the base of the series, as metamorphics come in just north of them, and amongst the Kamthis a dark purplish sandstone of fine texture, highly ferruginous, felspathic and slightly micaceous, is well developed. The same is seen to a considerable extent in the hills to the north-east near Bimulu, also close to the boundary. On this rock there is often a coating of hydrous iron peroxide, as on laterite. The sandstone hills were seen stretching away to the Godavery, south of Palavaram, but were not further examined.†

^o See Voysey, J. A. F. B., 1833, p. 403; Newbold, J. R. A. S., vii., p. 232.

† I am informed that the sandstone is also found east of the Godavari in this direction.

The hills west of Pangadi consist principally of trap, overlaid in part by sandstone or conglomerate; underlying sandstone only appears on their northern edge, close to Dudukur. The fossiliferous limestone band is distinctly intertrappean, but at a small height above the base of the volcanic rocks. The trap is fine-grained and compact, decomposing into the usual soft earthy greenish rock. All around, so far as was seen, the country is covered with black cotton soil, and agate fragments are scattered about as in the Nagpur country.

To the eastward the hills are thickly capped with ferruginous grit and conglomerate, precisely resembling that in the Kamthis, and probably derived from their waste. This rock is well seen near Daicharla and south of the bungalow at Pangadi. In the latter place it consists of coarse white speckled felspathic sandstone yellowish-brown in colour with ferruginous bands. The trap can be of but little thickness, probably not more than 200 to 250 feet. It is seen on the road from Pangadi to Rajamahendri and reappears north of the latter town, whilst the overlying sandstone appears to form the hills at Dowlaishwaram.

The following papers relate to the geology of the country near the Godavari :—
VOYSEY, H. H.—Report on the Geology of Hyderabad, J. A. S. B., 1833, Vol. II., pp. 298—305.

Second Report on the Geology of Hyderabad, *ibid.*, pp. 392—405.
WALKER, W.—Memoir on the Coal found at Kotah, &c., with a Note on the Anthracite of Dumtimnapilly (H. H. the Nizam's dominions) J. A. S. B., 1841, Vol. X., p. 341.

Report on Productions, &c., in the District of Hummumkoondah, in the dominions of H. H. the Nizam of Hyderabad, *ibid.*, p. 386.

On the Geology, &c., of Hummumkoondah, *ibid.*, p. 471.

On the Natural Products about the Pundalah River, H. H. the Nizam's territory, *ibid.*, p. 509 and p. 725.

VOYSEY, H. H.—Extracts from private journal, J. A. S. B., 1850, Vol. XIX., 189 (this does not refer to the Godavari country), and p. 269 (pp. 287 and 288 and 297—302).

WALL, P. W.—Report on a reputed Coal Formation at Kota on the (Upper) Godavari River, Mad. Jour. Literature and Science, 1857, Vol. XVIII., p. 256.

WALKER, DR. W.—Report on Boring for Coal at Kotah, Mad. Jour. Literature and Science, 1857, Vol. XVII., p. 261.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. V., Part 2 : 1872, May.)

NOTES on a Traverse of Parts of the Kummummet and Hanamconda Districts, in the Nizam's Dominions, by WILLIAM KING, B.A., Deputy Superintendent, Geological Survey of India.

The country referred to in these notes is a moderately elevated and rather thickly jungle-covered tract to the westward of the Godavery river, and lying generally along, but to the south of, the 18th parallel of north latitude.

Country bordering right bank of Godavery.

Already referred to in Records.

That part of the tract adjacent to the right bank of the Godavery has been already referred to by my colleague Mr. W. T. Blanford.*

A path traverses the region in a general, west-north-west direction from Paluncha in Kummummet to Narsimpet in the Pakhal talook, some thirty miles east of Hanamconda; and it was along this route that my observations were made, for except around the few villages, up some side paths, or in the dry watercourses, it is at present almost impossible to see anything of the country, owing to the prevalence of thin tree jungle and undergrowth.

Observations, mostly made along path from Paluncha to Narsimpet.

The few people who inhabit this country are of the "Koi" tribe, which is at present more generally confined to the Bastar territory, to the east of the Godavery.

Inhabitants belong to "Koi" tribe. I took up the further examination of this country at Paluncha, in the neighbourhood of which place Mr. Blanford had been last season.

Paluncha is on the coarse sandstones of the Kamthi sub-group already described by Mr. Blanford as extending thence down to Ellore, in the Godavery District. These rocks, however, only extend a little distance from the village; and the path to Yellambile passes on to rocks of the "crystalline series," gneiss of different kinds showing at rare intervals out of the superficial deposits covering the low-lying and slightly uneven country.

Near the crossing of the Kinnersammi Vagu, or a short distance higher up the river, there is a good display of rocks which are not so clearly of the gneiss series as those already passed over; and these are found to be associated with highly altered quartzites forming the low hill ridges lying to the west and north of Yellambile, and continuing northwards into the lofty group of hills lying between the villages of Munderkheil, Oolavanoor, Mullawarum, and Mamla.

Mr. Blanford has noted (on his working map) that part of this range may be of Vindhyan rocks. The southern flanks, at any rate, are made up of quartzites, slates, and schistose beds, which though they have a much more highly altered character than the generality of the Vindhyan are still not sufficiently metamorphosed to be included in the gneiss series. Occasionally, it is true, some of the quartzites and schists are remarkably like ordinary well-laminated gneiss; but the general aspect of the series is decidedly more Vindhyan in its character.

The series forms a distinct belt of rocks, having a north-north-east south-south-west strike, between Yellambile and Koyergoodium* (some 9 miles north-west) difficult to be defined by good boundaries from the gneiss between it and the Godavery, but still separable by constitution and general *facies*.

I have (in previous years) already observed a small patch of like rocks on the eastern edge of the Bellary District, just underneath the western scarps of the Polleconda range of hills, south-south-east of the Chittrawutty river as it enters the Kadappah district. Here they are quite distinct from the adjacent granitoid gneiss and the superincumbent Vindhyan quartzites. Again, on the western edge of the Nellore district, south of the Pennair, there is an extensive belt of similar rocks, which I have doubtfully mapped for the present among the Vindhyan of that part of the country.

Close to Yellambile, however, the series is rendered extremely interesting from its including numerous beds of grey limestone which show to the unassisted eye a structure, or arrangement and constitution of the laminae, exceedingly like that of the *Eozoön Canadense* of still unsettled origin.

A short distance (some 500 yards or so) north of the village there are several beds of limestone cropping up in the jungle on either side of the path to Munderkheil. They are striking about east by north, west by south, and are either vertical or dipping at high angles north or south; while they are traceable to the northward for some short distance, and southwards as far as Gutmulla. Ridges and bands of highly altered and crushed quartzites run between the bands of limestone strata.

Again, some 8 or 9 miles north-west, at the villages of Bungarchilka and Koyergoodium, there is a further exhibition of limestone beds of the same kind; but they do not show the eozoönoid structure so plainly.

* As a rule, the names of places as they are given in the sheets of the Indian Atlas are adhered to in this paper when they are found to agree with the names given by the people. In the region under description the people say *goodium* or perhaps *goodyem*; I have never heard '*goodum*,' or *gudem*.

Generally the beds are of pale (weathering darker) grey and white laminated sub-crystalline (not saccharine or granular) limestone, the laminae running easy or parallel with the strike. This, for instance, is the style of the beds nearest to Yellambile; but almost immediately north there are other beds forming a broad belt traceable south-west almost to the Kinnersammi Vagu, which are not simply laminated, but have their layers of different matter arranged in waving and undulating lines, rapid contortions, lenticular masses with enveloping laminae, and knots of all forms. The undulations are equally various on surfaces across or with the strike.

The harder laminae—still soft enough, however, to be scratched with a knife—stand out well on weathered surfaces; and they appear to consist of some form of *Pyroxene*, and are generally of a grey or greyish-green colour, and again at times quite white. Some of the laminae are occasionally of a more decided green colour, and they then are possibly *serpentinous*, but this is rare. They are equally unaffected by acid on fresh or exposed surfaces.

The outstanding layers are also themselves finely laminated; and as they widen out often to half an inch or more they assume a granular form, and are occasionally fringed on one edge. A number of such layers often run together and thus make up a broad seam of irregular laminar-granular structure.

Though not a particularly bright-coloured rock, it still shows these characters on half-polished surfaces (I could only grind them down so far in camp), and they are then, if anything, more eozoön-like.

Much of this limestone is more or less micaceous, and is then somewhat schistose; but neither the direction of the schistose surfaces, nor yet the cleavage which is also exhibited, have anything to do with this lamination, which appears to be as distinctly sedimentary as the lamination in any ordinary aqueous rock.

This existence or not of eozoöna structure must now rest on that closer examination of the rock specimens which could not be made in the field.

From Yellambile the path runs north-west to Bungarchilka. Thence, after going north for a mile or so, it passes round the northern end of the quartzite ridge north-west of the village, and then enters on Kamthi sandstones.

These are lying in easy undulations, or nearly flat, possibly with a general dip of from 5° to 10° north, or north-eastward. They cannot be of much thickness between their eastern edge near Bungarchilka and the village of Arlapully, the next place of any size on the road; but they attain a much greater thickness in some ridges and high hills to the north, on whose steeper slopes the lines of outcrop of the beds are very well displayed.

Arlapully is noticed* by Mr. Blanford as a place where some fragments of coal had been found. I did not know this until some time after having left the village, or a closer examination might have been made. However, in the next march, viz., from Arlapully to Goondal or Goondala (some 10 or 12 miles west-north-west), there is a gradual change in the appearance and character of the sandstones, even in the rare cases in which they are exposed to view.

These become rather paler-coloured, less coarse and tufaceous in their texture, and full of iron concretions, when they are indeed very like the Barakar sandstones of Lingala and Madaveram, on the Godavery.

The path from Arlapully crosses the Kinnersammi Vagu at the confluence of the Jaleru (from the north), and then it keeps pretty close alongside the right bank of the main stream until it again crosses the river just before passing through the village of Mootapooram.

At this crossing there is a good display of thick-bedded grey and yellow sandstones, some of them rather fine-grained and not unlike Barakars; indeed, from the fact of the beds undulating so

easily, and there being an evident general dip of low degree to the east and north throughout the Kamthis up to this, it is highly probable that these pale beds are really of the lower series.

The above is what I noted at the time of passing the place. Since then I have seen the coal area north of Kamarum, to be described further on, and I am still of opinion that at Mootapooram, or close by, we have true Barakars; and it is at this village, until the bed of the Kinnersammi Vagu has been examined more closely, that trial borings might be put down with advantage, if it ever become necessary to search for coal in this wild region.

The beds are rolling about easily with a dip of 5° or 6° about north-west, though it is difficult to say what is the true direction of the dip in such irregular beds as these are.

It is even possible that a seam of coal may show in the place where the large pool of water lies at the crossing; for I found that the pools of water on the coal area of Kamarum* are all lying on the seams, or close by.

Perhaps a seam of coal at crossing of Kinnersammi Vagu.

That we are near the bottom of the Kamthis, if not below them altogether, at Mootapooram, is soon evidenced, for the large village of Goondala, about 4 or 5 miles further west-north-west, is quite close to Vindhyan slates and quartzites. These form the main hill range, a mile or more south-west of Goondala; and a low plateau ridge, immediately west-south-west, is made up of coarse, ferruginous, dark-coloured Kamthi sandstones.

No trace of Barakars was seen in this neighbourhood, little rock being visible in the open flat country around. My examination was, however, very brief and superficial, as, owing to the dryness of the season, I was hurrying on to examine the Kamarum field before all the water in the pools should be dried up.

Barakars not seen.

Goondala is the only village proper on the route; there is a bazaar, &c., and the inhabitants are not exclusively "Kois," as is nearly always the case with the other villages, except Arlapully, where also there is a mixed population.

Continuing westward from this for a couple of miles there are a few villages, among them Lingoogooram or Lingoogoodium, all of which are just on the boundary between the talooks of Nandyconda (just traversed) and that of Pakhal to the west.

Boundary between two Talooks.

A short distance beyond Lingoogoodium there is a small hill of Kamthi sandstones round which a stream flows; after crossing this and another wider one, which may be the Kinnersammi, the path begins to ascend, and then crosses a low ridge of Vindhyan slates.

Kamthis cease near Lingoogoodium. Vindhyan.

No more Kamthis are to be seen for 10 or 12 miles to the west; their general south-western edge trends northwards past the small hill west of Lingoogoodium.

The path now runs through a rather wilder country, still covered with tree jungle and coarse grass. The general elevation is about 1,000 feet above the sea, and the surface of the country is rather rugged with low ridges. It is impossible (unless clearings were made) to get a view anywhere to give one a fair idea of position.

Elevated and wild country.

I got on one small hill which gave a view over a country of apparently endless tree jungle unbroken by any distinct feature, the long range of Vindhyan to the south-west of Goondala being only recognizable. Two or three paths cross this waste of jungle to Kamarum; that followed by me was reported to be the best. It is a mere track, occasionally worn into two ruts by the woodcutters' carts, and much intruded on by trees, so that my packages on the camel's back were much torn and rubbed. Otherwise there are no difficulties or even dangers.†

To Kamarum.

* The fragments of coal said to have been found at Arlapully could not have come down from the Kamarum field, as there is a high watershed between the two places. Kamarum fragments might turn up above Mungumpet, on the Godavery.

† The route as given in Colonel F. H. Scott's Route Book is described as rather rugged and dangerous; but this description is of many years ago. However, it is not a path to be travelled during the night time.

The rocks are generally reddish and brown earthy clay-slates and a few beds of quartzite sandstone of the Vindhhyans, not at all unlike those of parts of the North Arcot and Cuddapah districts traversed by the north-west line of the Madras Railway.

Style of Vindhhyans. Kamarum, in the Pakhal talook, is a poor village^o in the midst of about the wildest part of this jungle-covered region. It is supposed to be the nearest convenient village to the coal locality of the Pakhal talook.

Kamarum. Without further preface, it may as well be stated at once that this coal field is very small, and ill-placed in every way for its development.

Coal-field north-north-west of Kamarum. At the most liberal calculation it is 156 acres in extent, and it very possibly may yield 2,265,120 tons of coal, of which I should say 1,132,560 tons would be good coal, almost as good as that of the Wardha R. coal-fields. It is, unfortunately, lying at the very inconvenient angle of 30° on the average; and the seams are apparently the water-holders of the field.

Account of the discovery of coal-field. This little coal-field was reported to the Nizam's Government by the then Tahsildar of Kandiconda, who gave a tolerably exact account of the occurrence of the coal and the nature of the country.

There was great enthusiasm on the subject, and a reward of Rs. 2,000 was at once determined on; but it became doubtful as to whose the reward ought to be, the Tahsildar being supposed to have a great claim. He certainly made a rush at the field as soon as he heard of it, though it was not in his talooks. However, it has now been definitely settled that the reward goes to the Koi men, who knew of the coal, and the Banya who got the information from the Kois, by making inquiry on the subject. Under such a fair adjudication of the reward, it may be that further information regarding other seams of coal in this region may now be volunteered.

No other coal near at hand. So far there is no more coal in the locality in question; it may be found lower down the valley of the Pangady Vagu, and, as stated above, there are fair signs of it at Mootapooram, in the Kandiconda talook, while the Barakars may crop out among the hills due north of Lingoogoodium.

Position of coal-field. The coal-field lies about six miles north-north-west by west of Kamarum, in the bottom of a wide valley opening northwards, on a main feeder of the Pangady Vagu.

A small patch of Kamthia. Leaving Kamarum, the path for about 3 miles goes along the plateau top of a spur extending into the valley, over a thin set of Kamthi sandstones and conglomerates which are resting nearly horizontally on Vindhyan slates. This covering of sandstones is only a thin outlier left on the older rocks, which, excepting at the coal-field, are the rocks of this part of the country. At the end of the spur the path descends a low scarp or step of 30 or 40 feet, and then goes north-west for some distance down into the valley, until it crosses the main stream for the first time.

Rocks of the country mainly Vindhhyans. Here the course of the stream is over dark-green trappean rock (weathering into a mudstone) with dyke-like masses of compacter rock, occasionally laminated and bedded, which is soon seen to be of the Talchir series. True Talchir conglomerates and fine muds occur very shortly after this, especially throughout the course of the river beds, but they are mainly volcanic muds and ashes associated with a great boulder bed of irregular thickness. Higher up come fine dirty green-mud and sandy-mud shales, and then thick beds of fine pale greyish-green sands. The lowest rock seen within the neighbourhood of the river bed is of trappean matter, generally devoid of lamination, of a dark-green colour, occasionally nearly black,

Talchirs; trappean.

Talchir "boulder bed."

Lowest Talchirs, a form of trap.

^o Deserted while I was there, the "Kois" having migrated to another group of huts not far off. As a rule, these people deserted every village we came to or passed by, but they gradually emerged from the jungle when they found that no harm was meant, and came up to the camp.

weathering of a dark-brown or reddish-brown colour, of a compact dull stony texture, weathering into a compact sandstone. This, as well as some of the shales, is occasionally slightly vesicular, or finely tufaceous and containing small fragments of slate and shale. This lower deposit is in places somewhat conglomeratic, but I think the true conglomerate is higher in the series. Over this come a few thin laminated beds of the same style of rock, or as often an "ash-like" mud-stone rock with large and isolated smoothed fragments of limestone, slate, quartzite, and occasionally gneiss and granite. Some of these fragments are very large, as from 4 to 6 feet by 2 and 3 feet, and they are generally lying singly in the finest form of this ash mud. At other times there are the more frequent seams of pebbles and shingle, though these are not crowded together as in an ordinary pebble or shingle bank.

Style of the "boulder bed."

This appears to be the representative of the usual "boulder-bed" in the Talchir series: only in this region the new feature of its having been at times derived from volcanic sources is, I think, clearly evidenced. As to the occurrence of the smoothed boulders in the fine mud, one can hardly lay aside the idea so often advanced by my colleagues, but that these were worn and deposited by glacial forces. Two large smoothed and rounded subangular masses of Vindhyan limestone certainly seemed to me to be

Trappean and glacial.

scratched otherwise than as from the wear and tear of the river; but I had no means with me for heaving them out of their position to see if the uncovered sides were marked in the same way. It is fair to state that the few boulders of limestone (unscratched on their exposed surfaces) which I did displace were not marked at all on their buried faces. An enthusiastic glacialist would certainly have seen in the Talchirs of this region a deposit similar to that which is probably being laid down in the neighbourhood of Iceland, for instance, in the present day, where deposits of an undoubtedly volcanic source will be found associated with the *débris* of an ice-rubbed country.

The path crosses the river four times in a distance of about 3 miles, Talchirs being traversed all the time; but near the fifth crossing grey Barakar sandstones are met with on the slope of the valley descending again to the stream, and in the bed of the same there is a seam of thinly laminated shaly and stony coal of about 20 feet in thickness, dipping at 30° to 35° south-west by west.

Barakars with seams of Coal.

The outcrop of the coal is seen very strong in the river bed as one goes northwards, and after a few yards the dip becomes a little easier. The river then makes a little bend by which the coal runs in under the bank, but beyond the bend it shows again in the river very strong, still with the dip of 30° to 35° , which, however, rapidly increases to 45° (if not really more beneath). It is about 18 feet thick, close to a narrow gully of the river crossed by a band of sandstones having a north-west strike. Here the coal strikes into the land on the left bank; and nothing further is seen down the course of the stream for a little more than a quarter of a mile of windings but sandstones lower than the coal, and then beds of the Talchir series.

Seam in the river bed.

Still following the stream, however, I found, at about 2,800 feet from the last gap, another sharply angular twist of the river crossing Barakar sandstones; and here the following section is traceable, in ascending order.

Three seams of coal lower down the stream.

At the bottom the boulder bed of Talchirs overlaid by dirty pale-green fine muds, sandy muds, and thick beds of pale grey-green fine sandstones. These are generally dipping westward or south-westward in irregular undulations, at 20° to 30° .

Resting unconformably on the fine sandstones are—

- (1). Grey weathering, slightly ferruginously noded, very coarse, open-textured, soft, pale, buff and white felspathic sandstones, with occasional thin layers of pebbles. Various bedded, sometimes very thick, or thinning out over one another. The beds are somewhat thinner (3' to 4') near the top, and more compact ... 74 feet.
- (2). Thinner flaggy beds of soft sandstone and dark-grey or blue sandy micaceous shales 1—2ft.
- (3). Coal.—Thinly laminated, rather stony, and full of patches of a soft velvety charcoal (This is the seam showing in the bed of the stream higher up) ... 6 feet.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

- (4). Coarse grey sands, thick- and thin bedded, somewhat thinner-bedded towards top: at bottom, resting on the coal, a very thick bed, 20 feet or so, of coarse pale-grey sandstones, with a few iron concretions. 60 feet.
- (5). Coal.—(This is throughout the field a thin layer, and it at times thins out in strings into the sandstones)... .. 6–12 inches.
- (6). Coarse sandstones same as those below last seam of coal 15 feet.
- (7). Coal.—Similar to lower seam 9 feet.
- (8). Thick beds of coarse grey sandstones 15 feet and upwards.

The upper bed of coal (7) shows in the steep face of the river banks—a fine bed, 6 feet of it exposed vertically, the dip being a little easier here (25° to 30°). A little brook from the westward has hollowed back a small cave in the coal.

The middle thin seam (5) is just visible between cropping-up beds of sandstone.

The lower seam (3) is only visible immediately beneath a large cliff of the sandstones at a sharp turn in the river, where the latter is crossed by a ridgy band of the sandstones below the coal, having a dip of 30° south-west.

The coal has been washed out, and the cleft thus formed is filled with gravel and sand, but the upper part of the seam can still be seen just under the cliff. This cleft is the water-holder of the place, and it is in like spots in the other sections exposed by the river in these coal rocks that water is now standing.

A short distance further down the stream the same three seams of coal may, with care, be traced out at different points; here the dip becomes rather easier, while the strike is tending more round to due west. South of this for a mile or so there is nothing but Talchirs, and hills of Vindhya on either side of the valley.

After a good deal of searching at the original locality, higher up the river, I found that the three seams of coal are also there, and they are apparently not much reduced or increased in thickness as a whole. The upper seam is possibly a few feet less, while the lower is, as stated, 20 feet thick. The beds associated with the coal are pretty much the same as those given in the section above.

Following the stream upwards from this for some 100 yards, round a spur on the right bank, there is another watering place under a ledge of sandstones; and here again is the lower seam of coal, still about 10 or 12 feet thick, overlying sandstones striking across the stream with a dip of 30° south-west. Coal visible in both banks.

Lastly, still higher up the stream, about 600 or 700 yards, a 6 to 12 inch seam is traceable in the vertical face of some low dipping sandstones on the left bank, at about 4 feet from the ground. This is very possibly the thinning out of the lower seam.

At any rate, not many yards higher up the stream, the Barakars cease altogether and Talchirs form the ground; but these ever extend only a few yards westward, when they are found to come up against Vindhyan quartzites of the main western hill-side of the valley.

These three or four places down the course of the stream, showing from one to three seams of coal, thus indicate a curved line of outcrop of Barakars of about 8,000 feet in length, the Talchirs hading out to the eastward from underneath them.

Examined at right angles to the strike, they are found in the hollow of this curved line to be overlaid by Kamthi sandstones forming a series of low ridges just behind that point of the stream where the coal was first found. The beds of these ridges, in their turn, dip at the high ridge forming the main western side of the valley.

All about against main western ridge of Vindhya. At either end of the outcrop the coal rocks and the Talchirs are traceable into close proximity with the Vindhya of the main ridge. The western boundary of this small find of

Talchirs, Barakars and Kamthis is then, as nearly as possible, a north-west to south-east line joining the two ends of the curved outcrop; and the greatest cross-width of the area of Barakars and Kamthis is about 2,500 feet. The width of the Talchirs was not ascertained; it is possibly never more than a mile.

I was unable to find any of the upper rocks in contact with the Vindhya to the westward ; but it seemed that this boundary is either a faulted one with a nearly vertical edge, or preferably a natural one, the Kamthis, Barakars, and Talchirs having been deposited in a basin against a steep shore of Vindhya.

The dip of the Kamthis in the minor ridges between the river and the main western range of the valley is still at about 30° westward : so that we are perforce obliged to consider that the coal field throughout has about this average dip, except, perhaps, a little lower at the northern end, where the beds are striking round west at the main ridge.

Continuing the section given above in ascending order, I was able, by going south-west at the main ridge, to roughly estimate that there are about 140 feet of Barakar sandstones over the upper seam of coal (possibly there may even be more seams than those now described), and then 950 feet of Kamthi sandstones.

To recapitulate in descending order :—

<i>Kamthi sandstones...</i>	...	...	...	...	...	...	950 feet.
		Sandstones	...	...	...	...	140 "
		Coal	...	...	...	...	9 "
		Sandstones	...	...	...	...	15 "
<i>Barakars</i>	...	Coal	...	...	...	...	6—12 inches.
		Sandstones	...	...	...	...	60 feet.
		Coal	...	...	...	...	6 "
		Sandstones	...	...	...	...	74 "

Talchirs (thickness unascertained).

This is the thickest part of the Kamthis and Barakars together ; the latter thin out to the south.

Supposing that the western boundary has a nearly vertical edge, which I think is the true state of affairs, it may then, without allowing for greater area by the pocket-shaped form of the bottom, and the high dip, be considered that the area of Barakars is about the same as the area of the field in plan ; and this is about 156 acres. I think I am very well within the mark by taking 12 feet or 4 yards as the average thickness of coal throughout the two seams together. There are about 4,840 tons in a square acre of coal 1 yard in thickness ; but only three-fourths of this can be got out in the working, so that we may calculate on 3,630 tons, which being multiplied by 156 for the area, and again by 4 for the thickness of coal, gives 2,265,120 tons of available coal. The coal, as described above, is about half shaly and stony, the shaly being the best ; so taking half this number of tons it may be said that there are available in the Pangady Vagu field 1,132,560 tons of fairly good coal.

I could only judge of its powers by making ordinary fires (assays will be supplied from the Geological Survey Office by Mr. Tween).

These were made before my tent of an evening ; it was cold at the time (February) in this elevated region ; and with merely a starting of a few sticks of wood there was very soon a good blazing coal-fire which burnt with a brilliant flame for a long time. It then quieted down into a red-hot fire with a pale low flame, lasting so for two or three hours ; in the morning the fire was still in existence, but most of the burnt fragments still retained their general form in a heavy light-coloured ash. For such a fire four or five lumps of coal each as big as an English brick were used. The coal can be quarried in large lumps, which will bear rough carriage. The fragments used by me were just dug out from the bed of the river, where the coal must be much deteriorated from that unexposed to the atmosphere.

So far the favourable aspect of the Pangady Vagu coal has been given.

Against it there is the extremely high dip, and the fact that as its outcrop is for the greater part of its length either in the river bed or close alongside—the only pools of water in the river being now on the seams—it is extremely probable that, even in such an exceptionally dry season as this, the seams are full of water from outcrop to full depth. The area is very small.

Disadvantages connected with the coal of this field very great.

Dip high, and seams full of water.

and it is situated in the heart of an elevated and completely jungle-covered region, in which the number of villages, or rather small groups of huts, is extremely small and scattered. The only useful route for this coal to be drawn out is northwards by the valley to Salevoy or Mungumpett. In the present condition of the jungle, work could only be done from early in January to the end of May, as the country is reported to be either highly feverish, or rendered impassable owing to flooding by the rains during the rest of the year.

From Kamarum the path continues still westward, first of all traversing the western range of Vindhyan already referred to, by a cross valley, thickly grown with jungle, through which a clearing has lately been made; and so across the rest of the Pákhál Talook to Hanamconda. Beyond the high ridge just crossed there is a wide stretch of forest-covered, mostly high flat country with occasional shallow valleys and easy descents to other terraces of flat ground, until the more irregularly hilly country in which the great Pakhal tank is situated is reached. This country is all of Vindhyan rocks, mainly earthy slates with bands of quartzite, and one series of slightly magnesian grey silicious limestone having a dip of 5° to 10° south-eastward. The general lie of these Vindhyan is undulating, with a gentle dip to the eastwards: occasionally also high, and even vertical, strata occur, so that they huddle up at times in low headlands to the westward.

The Pakhal tank has been made by throwing a bund across a river, which has cut its way over this western outcrop between two of these low headlands, and thus there is a noble sheet of water kept back among the few irregular hills bordering eastwards on the line of low headlands. It is a splendid tank: there was no rain, to speak of, last season, and yet now there is a beautiful and wide-spread sheet of water lying back in two arms on either side of a good big hill east-south-east of the bund: while from these are long bays reaching up behind low ridges of outcropping Vindhyan. On every side there is far-stretching jungle; even below the tank bund, for miles, there is the thickest and densest jungle, only broken here and there by a few patches of rice cultivation. There is not the population, even, in the country below the tank to make use of its waters; and no careful means are taken, in these days of Mahomedan rule, to conduct the water to a part of the country where the population is more numerous. In the old Telinga times, when Warrungul was one of the great centres of the Telugu people, there must have been something more stirring in the way of human life than there is now in this desolate region of wide-spread jungle.

Not more than a couple of miles below the tank there is a great rectangular fort still standing entire as to its high mud and stone walls, but all overgrown with, and in the midst of, tall tree jungle. The Nizam's Government is at present erecting a large convict jail here, which not being yet ready for its prisoners, and with jungle around, looks almost as desolate as the old fort.

The *coup-d'œil* of Pakhal tank is tame, the country being flattish and unbroken by any good hills except the long low ranges far to the east near Kamarum, and the one large hill at the bank of the tank. In beauty and picturesqueness it cannot, for instance, be compared with the great Cumbum tank, in the Kurnool district.

The bund of the tank is very nearly on the western edge of the Vindhyan; in fact, the base of the low headlands at the south end of the bund is possibly made up of the bottom beds of the series, in this part of the country; for, about half a mile west of the bund, the stream of water from the sluice is crossed, and here there is very coarse granitoid gneiss of the crystalline series, and these are the rocks which make up the rest of the country westward to Hanamconda.

Note on Pakhal tank.—The tahsildar of Narsimpet has obligingly furnished me with the following data regarding this tank from records in his office :—“The tank is said to have been constructed about sixteen hundred years ago by Rajah Khaldya. The bund of the tank is nearly 2,000 yards long, breadth 6,000 yards, and the depth back from the bund 8,000 yards. When full of water the depth at the sluice is 12 yards.”

CAMP GUDDOODIUM, }
1st March 1872. }

WILLIAM KING,

Deputy Superintendent, Geological Survey of India.

NOTES on a new Coal-field in the south-eastern part of the Hyderabad (Deccan) Territory, by WILLIAM KING, B.A., Deputy Superintendent, Geological Survey of India.

In the regular course of my work I have found a further small and hitherto unknown outlier of coal-bearing rocks, some thirty miles south-east of the Kamaram or Pangady Vagu field, already described in these records.^a

The present field is situated between about 17° 30' and 17° 40' north latitude, and 80° 18' and 80° 25' east longitude, near the villages of Rumpaid, Yellindallapad,† Hooserakapully, and Ragabonagoodium, in the eastern part of the Kundyconda talook. Its southern extremity is about four or five miles east of the large village of Singareny, and it may be as well to give this name to the field.

It is a narrow irregular patch of the “plant-bearing series” of rocks, about eleven miles long and from one to two miles in width, giving an area of about nineteen square miles, though at the same time the coal measures are only supposably about eight square miles in extent.

As the crow flies it is about twenty-three miles north-north-east of the town of Khummumet,‡ and thirty-six miles east of Nellycudr, the tahsil village of Kundyconda talook.

As far as my knowledge goes, coal is only visible at one spot, and it is possibly only due to the fact of the country being so dried up this year, and the exceptional lowness of the water in the few stream pools, that I was able at last, after long and apparently hopeless searching, to find the upper edge of a seam showing just above the mud and water in one of these pools.§ For this reason also is accountable the fact that the people around had no idea of the existence of coal.

Even though the seam had not eventually been met with, I should have announced this as a possible coal-field, and recommended that it should be proved by boring, for the rocks were to my mind clearly of the coal-bearing series.

I am unable to give now the thickness of the seam, for neither time nor means for excavation were at my disposal ; but there are two feet of coal ascertainable, and it looks a good strong decided seam.

The coal so far is tolerably light, compact, charged slightly with patches of powdery charcoal, is more or less bright, and breaks with a sub-conchoidal fracture. In an open fire, after being well dried in the sun, it burns brightly, though not quite so brightly as that of the Pangady Vagu field, and leaves a soft powdery ash.|| A fair average specimen gives the following assay :—

Fixed carbon ...	...	...	...	...	...	...	...	...	...	62.4
Volatile matter ...	...	...	...	...	...	...	...	...	...	22.6
(Moisture 6.0)	...	...	...	...	...	...	...	...	...
Ash ...	...	...	...	...	...	...	...	...	...	15.0
										100.0

The specimen is, however, only from a few inches within the exposed surface of the seam.

Owing to the absence or concealed state of the outcrops of coal it is utterly impossible as yet to say what its extent may be, and this cannot be ascertained until borings have been put down in various parts of the field. The positions of the different series of rocks can only be indicated, as also the fact that there is coal.

^a Records, Geological Survey of India, Vol. V., Part 2, p. 46.

† Yellindallapad is nearest to the outcrop of coal seam ; but it is deserted at present (March 1872). Kollapoor and Cheedamulla (Sodanilla), a couple of miles to the east, are larger villages.

‡ This name has been variously given, but the above seems the nearest adaptation to *Kahā Mas*, which is the official manner of spelling it. It is distinctly not *Kumarmet* ; the spelling in the atlas map is very fair.

§ It is possible, therefore, that the seam may not be visible to future explorers ; but I showed it to two of the people of Kollapoor, who can easily point out the spot.

|| In this very different to the Pangady Vagu coal, the ash of which is hard and retains the form of the original fragments.

A small map^o is appended, showing the general outline of the field and the rock series. Absolute correctness of boundary could not be attempted in this map; but the lines will be found sufficiently correct for future exploration.

This is essentially a field requiring examination by borings, which may be put down at some of the spots which are suggested on the map. In the Pangady Vagu field the outcrop of coal is so freely exposed that "he who runs may read" it; but here, in the Singareny field, the mineral wealth is not at all so evident, though if it exist in any quantity, which I am inclined to think it does, it is to be got at and carried out infinitely easier in every way than at the Pangady Vagu.

Here there is no hilly country to be got over, the locality being in the low country; while there is not nearly such thick jungle, though the field is completely covered by thin tree forest. The villages are somewhat more frequent and populous, and there are well-marked paths in several directions. The distances also to the coal from Khummumet and Kundyconda are trifling when viewed in connexion with the proposed branch line† of railway from Warrungul south-eastwards to the confines of the British territory.

It is difficult to indicate the exact place of the coal outcrop, owing to the inability of obtaining a sight at any place through the jungle; but it is about two miles, or scarcely this, due west of the small hill station marked on the atlas sheet 75, near the villages of Cheedamulla (Sodamilla) and Kollapoor, in the bed of the Yellindallapad Vagu or stream. At this place the stream is crossed by two low barriers of thick-bedded sandstone striking nearly east to west with a dip of about 5° to the south, though the more northerly of the two barriers is part of a low anticlinal with the beds on its northern edge dipping north. The stream has cut an irregular zigzag course, partly pot-hole and partly gully, across this latter barrier, with rudely vertical sides of from four to thirteen feet high. The gully is deepest in the middle, deeper than at either the entrance or exit, and here the sandstones have been scoured out sufficiently to leave the top of the coal seam exposed all round the edges of an oblong pool, the floor of which is also of coal. It is thus that the thickness of the coal cannot be ascertained without boring or sinking a pit.

About two feet of coal are visible, and the seam is overlaid by, at the deepest part of the gully, thirteen feet of sandstone in one bed. There is no passage, by shales or clays, from coal to massive sandstone above, the junction between the two being perfectly clear and sharp. The rock is a coarse friable felspathic sandstone, with small quartz pebbles, or gravel of pebbles, thinly distributed through it. At the thickest there is a single bed, but this eventually resolves itself into two or three thinner beds. This is the character of these sandstones on the Pangady Vagu as well as here—that they do not run of an even thickness for any distance, but that there are as it were bands of irregular lenticular beds of sandstone running into one another.

The general lie of the Damuda beds, as well as of the other associated rocks, is in easy undulations and from east to west, with somewhat of a general basin form; but they appear to be only exposed to any extent on the Yellindallapad Vagu. Over the rest of the field, if they exist, they are covered by sandstones of the *Kamthi* sub-group, though seldom to any great depth, possibly not exceeding two hundred feet at the most in the southern part of the field. In the northern half of the field it does not appear as if any boring would have to exceed one hundred feet.

The rock series exposed in this Singareny field are, in descending order:—

Kamthi, sub-group.
Damudas (coal measures).
Telchirs.
Vindhya.
Crystallines (gneiss, &c.).

*Kamthi*s and Damudas rest directly on the gneiss for a good part of the

^o The southern extremity of the field is left undefined, as I am not quite sure that it does not extend further south. Lateness of the season and absence of water prevented my continuing the survey among the low hills in this direction.

† Part of a system of railway proposed by Mr. T. M. Hardy Johnston, M. Inst. C.E., Secretary to His Highness the Nizam's D. P. W., in a memo. addressed to Sir Salar Jung Bahadur, G.C.S.I., dated July 1871.

eastern edge of the field. No Talchirs are seen here, nor do I think they exist. Round the rest of the field, except for a mile or so to the east of Singareny, the underlying rocks are Vindhyan.

The Talchirs are peculiar in occupying only the northern part of the field about Rumpaid, in the basin of whose main stream they are well seen forming good wide spreads of fine dirty yellowish green-grey (doeskin-glove-coloured) mud sandstones. There are no signs of volcanic associations here, as is the case on the Pangady Vagu; nor is there any well-developed boulder bed. Here and there are occasional large pebbles or small assemblages of such; and in one spot in the bed of the stream from Mankarum, &c., which is joined by the Rumpaid stream, there is a huge block (now broken in half) of from 10 to 15 feet in diameter of Vindhyan quartzite, which seems to be still almost *in situ*.

The Talchirs are distinctly overlapped by the next higher or coal-bearing series, and to such an extent, both here and in the valley of the Godavery, that the two series would appear to be separated by a greater interval than mere unconformity of overlap would indicate. Otherwise it is extremely difficult to my mind to account for such widely separated patches of a formation which always exhibits great uniformity of colour and materials.

In the present field I was not fortunate enough to find a section showing contact between the two series, but in my notes referring to the Pangady field the fact of unconformity is there stated. In that section, though a small one, the bottom sands of the Barakars are lying on bluntly-bevelled edges of mud sands of the Talchirs, the difference of angle being very little it is true, but there is still a difference.

It is to be remembered that the worn edges of the Talchirs (even now soft and friable mud-sands) would very likely, prior to the deposition of the Barakars, not be sharp and well defined, but rounded and somewhat fringed down; and the angle of dip not being much different from that of the newer rocks, their felspathic sandstones would, in general, lie over the sandy mud-stones more in the style of oblique lamination; and this is really somewhat the manner of the Pangady Vagu section, though there is, as I have written, the difference in lie of the *beds* themselves.

The Damudas and *Kamthis* are of the usual kinds, *viz.*, coarse and fine felspathic sandstones, the *Kamthis* being coarser, more open-textured, more ferruginous, and perhaps more gravelly. It is difficult, in the absence of any fossil evidence and favourable sections, to draw any well-defined boundary between these two series, though in general *facies* they are as distinct as possible, while at the same time they appear to be very distinct in age. It seemed to me that the passage between the two is marked by a set of thinner and somewhat closer-grained and compacter brown sandstones coated on the surface with brown peroxide of iron, and that these are the lower beds of the *Kamthis*. On such a view I have entered the two series in the accompanying map.

The hill station already referred to is of *Kamthis*; though, on the eastern side, and for some distance on the north and south the base of the hill is of crystallines. On the western side one descends from coarse sandstones having a dip of about 10° west by north gradually to what are unmistakeable Barakars, but whether these are continuous right under the hill between the *Kamthis* and gneiss it is as yet impossible to say, owing to the *talus* of *débris* all round.

From the hill there is a general easy undulation of Barakar sandstones nearly to the crossing of the Yellindallapad Vagu by the path from Singareny to the latter village; but just to the east of this path there are some low ridges of the compact ferruginous sandstones, which I take to be lower *Kamthis*. These are lying in a set of narrow undulations with a north to south strike; and at the crossing of the stream or *vagu* they are dipping east-south-east at from 20° to 30°.

The stratigraphic relations between the *Kamthis* and Damudas in this part of the country are also indicative of the latter being distinctly overlapped by the former, and that the Damudas were either only deposited in small detached areas, or were largely denuded prior to the deposition of the *Kamthis*.

In the present case the beds of the hill station do not seem to be underlain for

the whole of this floor, but to have overlapped the Damudas to the eastward ; and on this account it is to be feared that the *coal measures* will not be found constant throughout the field.

There are two other small outlying hill masses of *Kamthis* a few miles to the north-east of this Singareny field, which are in general character exactly like the hill station, or of a steep-sided plateau form, and made up of nearly horizontal beds. One of these is above or immediately north of Dharmapooram ; and the second further north-east between Kamaram and Anantaram. A couple of miles further east is the south-western edge of the main area of *Kamthis*. Now there are no signs of Damudas under this south-west edge ; nor are there any under the second of the two outliers mentioned. There are, however, grey and pale-buff sandstones at Dharmapooram underlying the hill of *Kamthis*, possibly Damudas, though I saw no trace of coal ; and it might be as well to examine these rocks by boring.*

In the southern part of the field the *Kamthis* are very strong, particularly on the eastern edge after the stream from the Kollapoor tank is crossed. Here they form some low ridges, and have a dip of 20° or 30° westward. The country is, however, so covered up by clay and sandy deposits, and jungle, that it is difficult to make out the lie from these ridges to the western edges of the field opposite Singareny, or to tell if any undulation brings Damuda beds up to within easy reach of the surface. Some of the beds on the western edge opposite Singareny in the valley of the stream from Kollapoor, &c., seemed to be Damuda sandstones. Borings should be put down right across this part of the field, and certainly below the eastern slopes of the ridges on the eastern edge.

I have indicated in the map where it would be advisable to put down bore-holes. In no case does it appear as if these would ever need to be sunk more than 200 feet at the utmost, and most of them, particularly in the middle of the field, would seldom exceed 50 feet. In all cases the borings ought to be sent down to the gneiss (the greater part of the floor of the field is possibly of crystalline rocks), except in the neighbourhood of Rumpaid, where Talchirs will be met with ; or to the Vindhya (hard quartzite, slates, and silicious limestones) northwards from the Yellindallapad stream, or in the southern end of the field.

CAMP KHAMMUMET, }
30th March 1872.

WILLIAM KING.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. V., Part 4 ; 1872, November.)

NOTE on a possible Field of Coal Measures in the Godavari District, Madras Presidency, by WILLIAM KING, B.A., Deputy Superintendent, Geological Survey of India.

About twenty miles to the westward of Rajamahindri there is a great area of brown and red *Kamthi* sandstones, &c., which was very rapidly examined and subsequently described by Mr. W. T. Blanford.† One of the desiderata of this examination was to ascertain if any further indications of underlying coal-bearing rocks existed than those already known on the Godavari river, but Mr. Blanford was only successful in finding a small field of these, to which he refers as follows :— “ In only one place was any rock seen which had a distinctly *Barakar* character. This lies south of the village of Bedanol, nearly due east of Ashraopetta, in a stream, and even in this case the rock was only white felspathic grit unaccompanied by shale or any other typical *Damuda* formation.”

During the latter part of the working season just concluded, I have had an opportunity of going more closely over so much of Mr. Blanford's area as lies within the Godavari and Kistna districts, but still without having found any other locality than the one pointed out by him. Neither could I here find any trace of coal, nor is there any knowledge in the neighbourhood of its ever having been seen. There is yet, however, the possibility of a seam being found by closer search,

* The Geological Survey of India have no means of boring.

† Rec. G. S. of I., 1871, page 4 ; 1872, page 1.

considering that there are in the stream courses numerous sand-filled gaps between outcrops of rock, which may be scoured out differently every season, and may thus show coal which we have missed.^o

The absence of shale, as noticed by Mr. Blanford, is not necessarily of material consequence, as local experience shows, for no shales are exposed in either the Singareny or Pungady Vagu (Kamarum, Nizam's dominions) fields, the coal seams in both cases being sharply interstratified with sandstones.

This being, up to the present, the only known locality in the Madras Presidency proper of sandstones belonging to the Indian coal-bearing rocks, it possesses more interest than it possibly deserves from the small extent of the field and absence of any absolute indications of coal. On this account, as well as because it may be found advisable to try the field by boring, the following short details are given.

The field of these Beddadanol beds is about $5\frac{1}{2}$ square miles in extent, being situated on the head waters of a large feeder of the Yerra Kalwa, with the village, or rather few huts, of Beddadanol in its midst. It is some thirty-eight miles west-north-west of Rajamahindri, and about four miles or so from the boundary of the Nizam's dominions near Ashwarowpetta. The nearest large village, Gunnapawarum, lies a mile and a half to the south. The area of sandstones is itself covered by thick tree-jungle and very thinly populated.

The strata extend for some width on either side of the river; on the left there is a width of little more than a mile, with a length of something more than four miles, while the patch is narrower on the right, being about a mile wide in the middle and thinning off to the north and south. The rocks are thick and thin bedded coarse felspathic sandstones, rather friable, of white or pale-grey and buff colours, weathering much darker. They occasionally exhibit ferruginous concretions on the weathered surface like the sandstones of the same group at Lingala, on the Godavari. Generally the resemblance to the sandstones of the Singareny coal field is most striking. The dip is, as a rule, south-west or westwards at low angles of 2° , 5° , 10° , and there are occasional undulations.

In the small stream south of Beddadanol there is a tolerably continuous outcrop of sandstones, having a general dip of 2° to 5° to south-west, with frequent easy rolls all down the bed until it debouches on the main stream. Very much the same kind of section is seen up the nulla north of the village, and again in a side stream further north. In the main river there are frequent outcrops of these sandstones below the junction of the first feeder mentioned above, and away in the jungle on either bank; but the best outcrops are seen higher up at the watering place north-west of Beddadanol, and thence upwards along the river course. Here there is a good deal of sandstone displayed on either side of the stream in thick beds, having an easy dip to the west. These are overlaid by a more compact and hard brown bed which seems to mark the change upwards into *Kamthi* beds, as it is succeeded by thinner yellow strata, and then by the red purple and brown beds so characteristic of that series in this part of the country.

It is very difficult to estimate the thickness of the *Barakars* as developed in the area under notice, owing to the frequent rollings of the strata; but, as far as could be made out on the three stream traverses of the Beddadanol side of the field, there must be at least 300 feet, without reckoning the strata on the other side of the river, which are not at all so clearly seen.

To the west of the field the land rising to the low flat-topped hills of Perrumpoodee, &c., is all made up of *Kamthis*, under which the Beddadanol *Barakars* may extend for any distance, though they will—if such be the case—be at too great a depth to justify mere trial boring, unless some better evidence of coal can be obtained from the sandstones now exposed. Along the eastern edge of the field the strata are lying directly on quartzose gneiss, without any interpolation of *Talchirs*. Indeed around the edge of the whole of the area in the two districts

^o As an instance of the rarity of exposure of coal seams, the case of the Singareny (see Rec. G. S. of L., Vol. V., Part 2) coal field may be cited, the seam having only become exposed by the merest accident of the water in the stream being so low.

now referred to there is no occurrence of these latter rocks ; the *Kamthis*, except in Beddadanol neighbourhood, resting on *gneiss*.

On the whole, it is very much to be feared that there is here only a small patch of *Barakars* which does not extend far under the *Kamthis* ; so that, if coal were eventually struck, the quantity would be so small as to be merely sufficient for local use. According to all the observations and conclusions of my colleagues who have worked at the coal rocks of India* it seems pretty clearly established that the *Damudas* so extensively developed in Bengal became of less and less importance to the west and south-west, the Rancegunge beds eventually being entirely absent or represented by rocks containing no coal, until there was only a series of small outlying basins of the lowest group or *Barakars* deposited on the lower part of the Godavari valley, which now remain as the coal-fields on the Pungady Vagu (Kamarum) and at Singareny, and last the sandstones of Beddadanol. On the other hand, the *Kamthis*, considered to be, in part at least, representative of a higher series (*Panchet*), have thickened out greatly in this direction, and constitute the great area of sandstones to the north of Ellore and west of the Godavari, which have in no case been found to contain coal.

There may, of course, be other patches of *Barakars* under this spread of *Kamthis*, but it would be working on mere chance, and at a most enormous cost, to attempt to pierce at random through this thick series on the expectation of striking on any hidden coal store. The succession of these *Kamthis* is so clear—one bed under the other for the whole distance across the strike from south-west to north-east, at a varying dip of 5°, 10°, 20°, to the south-west, without once a sufficient undulation to bring the bottom beds nearer to the surface than they can be struck along the north-east edge of the field—that all borings would run to an enormous depth. The only locality where at one time there appeared the slightest chance of finding lower beds brought nearer to the surface was in the Ponakamaud station range of hills, about 24 miles due north of Ellore, but it was soon found that the strata on the north-east slopes of the range were still underlaid by many hundreds of feet of beds of the same series.

Nevertheless the finding of coal in the Madras Presidency is of such vital importance that it seems advisable to have a series of borings made in the Beddadanol field. A very few trials, and these of no great depth, possibly not more than 300 feet at the most—and even this depth could to a great extent be avoided by putting short bore-holes down in a line across the strike—would settle a question liable to crop up continually so long as it was believed that sandstones of the coal measures existed in the Godavari district which had not been explored in this way. Boring tools could probably be obtained from the dépôts on the adjoining Godavari works, and possibly competent parties to take charge of the trials.

WILLIAM KING.

(RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, Vol. VI., Part 3 ; 1873, August.)

NOTE on the Barakars (Coal-Measures) in the Beddadanole Field, Godavari District, by WILLIAM KING, B.A., Deputy Superintendent, Geological Survey of India.

The question as to the existence of coal in the Godavari district, and indeed in the Madras Presidency,—for the area under consideration is the only known one of coal-bearing rocks in the British territory to the south of the Godavari river,—is still as full of obscurity as it was when I drew attention to the Beddadanole field last year. I have had, during this season, another opportunity of examining the ground most closely, but without success ; and this search was so close that it does not seem possible that any outcrop of coal will ever be found by surface searching. Any further exploration must therefore be made by boring, and I am not without hope that coal may then be found.

2. The most important point, and in fact the only tangible one to be relied on, is that the rocks of the Beddadanole area are *Barakars* ; that is, they belong

* See Rec. G. S. of I., Part 2, Vol. IV.

to the lower member of the Damuda series, or the coal-bearing rocks of India. It is true that no seam of coal is visible, but this does not at all necessarily imply the non-existence of coal.

3. To try and show that coal may exist in this field, I shall compare it with other adjacent fields, *viz.*, that to the north-west, on the Godavari below Badrachullum ; and the Singareny coal field to the westward, in the Nizam's dominions. In the first of these, though it was reported by Colonel Haig to Mr. W. T. Blanford that coal was said to have been found down there, no coal was to be found at the place ; indeed, the borings afterwards put down would seem to show that coal could not occur at the surface. At any rate, the rocks were seen to be Damudas ; and borings revealed seams of coal. These are, however, not of much extent on the British side of the river, though they are probably large enough on the Nizam's side, as I have since found that an outcrop of possibly the same beds shows at some twenty-five miles to the south-west.

4. As regards the Singareny coal-field, I can compare it more closely with that of Beddadanole, having likewise again visited it this season, when it is now being thoroughly examined by Mr. Heenan, the Superintendent in charge of the Nizam's coal fields. The only difference of outward circumstances, as regards the present inquiry, between this and the Beddadanole field is that coal did show at the surface in the former, though only in the most fortuitous way. Otherwise, the series of rocks (*Barakars*) in each field are identical in every way, in their appearance, constitution, and mode of occurrence. There are plenty of outcrops of rock over this Singareny area where one might expect that seams of coal, if they existed, might appear at the surface ; but such is not the case, there is only the one large "pot-hole" hollowed out in the low ridge of sandstones in the bed of the river with the seam of coal showing at the bottom. Nevertheless, since the borings have been put down by Mr. Heenan, not only has the first found seam been traced in other parts of the area, but three more have been struck, one above my seam and the others below. So that here we have a field with at least four seams of coal, the lowest found as yet being a very thick one, and having its strata so laid down that all these seams ought to crop out at the surface, whereas only one is just exposed. Outcrops of all the seams do probably exist ; but, as would be likely, owing to the coal being cut into and washed out at these places by the weather and the streams, they are either now covered up by sand and débris gathered between the exposures of the harder beds, or are hidden by the settling down of superincumbent strata.

5. This concealment or washing out of coal outcrops may equally exist in the Beddadanole field, as, it is hardly necessary to state, there are numerous spaces in the nullas between the exposed rock masses which are filled in with sand, though as a general rule the sandstones are very well and frequently exposed. Again, the lie or dip of the strata is very low, on the average about 5° to the westward, and they undulate to some extent ; while the general surface of the area occupied by the *Barakars* is flat, and thus the sandstones have not been deeply cut into by the streams, so as to show enough of the strata.

6. There is, besides, a physical feature of this area which seems to hold out some hope that there may be hidden coal. The field is traversed by a river of from 50 to 60 feet in width, which flows in the direction of, or with the strike of, the strata, or along the outcrop, that is, nearly north and south, a course which, viewed with the rest of its route over the *Kamthi* area, is somewhat exceptional. This course of the river may be due in part to the existence of a band of softer strata occurring between the sandstones which show at rare intervals on either side of the river. Indeed, I think there can be no doubt that there is a band or seam of softer or more easily worn strata covered up by the sandy bed of the river ; or we should have had rock cropping up at places in the channel. But boring alone will tell whether coal seams occur in this soft and denuded bed.

7. The exposed area of *Barakars* is, unfortunately, not extensive, being only about 5½ square miles. It is covered up immediately on the western side of the field by the great series (*Kamthis*, of Blanford) of red and brown sandstones,

in which there is no coal, constituting the upland country of Asharaopettah (Nizam's dominions), and Jeelagoomilly, &c. (British territory), to the westward. There must however, be a good spread, equal in area at least to that exposed, of the *Barakars* hading down underneath the *Kamthis*. I am led to expect that this *infra-Kamthi* extension is larger than I originally thought, on account of the westerly dip and the great thickness (about 300 feet at least) immediately under the covering edge of the *Kamthis*. Also, as we may judge to some extent by the lie of these last towards Jeelagoomilly, there is a roll-up again of the beds towards that village, thus forming a synclinal or depressed curve of the strata, indicative of an ancient valley, over part of which the Beddadanoie *Barakars* were deposited. This same valley beneath the *Kamthis* appears to have opened out south-eastwards, leading to the inference that if the *Barakars* do extend any distance underneath they would lie down this valley, rather than up or across it, and so be still in the British territory.

8. An indication of the possibly large extension of the *Barakars* underneath the *Kamthis* is shown some miles to the north-west; for, as already stated, I have lately found what certainly appear to be *Barakars* cropping out on the western edge of the great Ellore to Badrachellum spread of *Kamthis* at a point some twenty-five miles south-west of the coal-field below Badrachellum, and which may be an extension of that field.

9. To summarize, I think it may be concluded—

1st.—That there is a likelihood of coal from the fact that the sandstones of Beddadanoie are of the *Barakar* group.

2nd.—That there is some slight reason for suspecting that the Beddadanoie river bed conceals coal outcrops.

3rd.—There is every expectation of the area, exposed and hidden, of the *Barakars* being at least ten square miles in extent, if not a great deal more, and that it lies in the British territory.

So that, should it be decided to try the field by boring,—and I would most earnestly recommend this proceeding on account of the above three conclusions, though they be laden with conjecture,—the crucial bore-holes ought to be put down near the right or western bank of the stream, where they will run to a depth of over 200 feet before the coal-bearing strata are pierced. One bore-hole at about half-way down the course of the river within the field would be almost sure to strike coal if there be any in the field; though even if this failed another might be struck down about three-quarters of a mile further west, as the first bore-hole would only have pierced about half the thickness of the exposed field.

Details as to the character of the rocks, their lie, and the size and position of the field have been already given in the Records of the Geological Survey of India, Vol. V., Part 4, 1872.

CAMP, GODAVARI DISTRICT, }
April 18th, 1873. }

WILLIAM KING.

(MADRAS JOURNAL OF LITERATURE AND SCIENCE, No. 35; 1849.)

STATISTICAL REPORT ON THE CIRCAR OF WARUNGUL, by A. WALKER, Esq., M.D.,
Bombay Establishment, Nizam's service. Communicated by Major-General FRASER.

The Circar of Warungul, as it is called by the Mahomedans, but by the Hindoos Warunkal,—a name derived from two Canarese words signifying the place of the touchstone, or, more literally, of the black stone,—is situated between 17° 24' and 18° 24' north latitude, and 79° 11' and 80° 22' east longitude, its boundary comprising an area (including enclaves of adjacent areas) of 3,266 square miles. Its extreme length from east to west is about 80 miles, and its breadth from west [?] to south 70 miles. The Ramgheer, Mullangore, and Elgundel Circars bound it to the north. On the east it has the Ramgheer and Kummemet Circars, on the west Bowngheer, and on the south Kummemet and Nulgoondah.

So dovetailed is this Circar with others that without a very accurate map it would be impossible to state its area with exactness. The southern portion has

been surveyed and mapped, and the results published, but the map of the northern portion, though surveyed, has not yet been given to the world.

Though the name Circar would seem to imply that the division is of Mahometan creation, it is doubtful if it is so. On the contrary, from the existence of one family of Surdeshmookhs and of Surdeshpandyahs, it is more probably a division derived from the times of Hindoo rule and supremacy, and adopted by the Mussulmans (who contented themselves by changing the name) for the mere purposes of convenience. The substitution of the Norman name of county for the Saxon shire, without disturbing its boundaries, offers a parallel to this.

The Circar is divided into pergunnas, which, when large, are again subdivided in talookas—the division of turufs, though acknowledged, is only spoken of in one or two of the more wealthy and populous pergunnas; very often the divisions of talookas and pergunnas are confounded together by the native, and the number of the latter is sometimes stated at fourteen, while, by including some of the former, it is raised as high as eighteen at others. The map annexed will afford a tolerable idea of these purely artificial divisions, and the table in the Appendix No. 1 contains the names of the pergunnas and talookas and the number of villages, according to an assessment called the koolkamil.

The chief geological formation of the Circar is sienitic granite composed of quartz, felspar, and hornblende. The next is gneiss passing occasionally, by a very natural transition, into hornblende schist. The third is sandstone. Although the minerals noted above constitute the prevailing sienitic rock, it by no means follows that no other mineral components occur; of these the chief are:

1st. The pegmatite of French writers, from which hornblende is excluded, and the rock consists of quartz and felspar alone. The first mineral sometimes so predominates that, appearing in pieces from the size of a hazel nut to that of an egg, it gives the rock the look of a conglomerate. The felspar in this variety is very commonly flesh-coloured: this is a frequent form occurring in the neighbourhood of Warungul, and at Dogundah, on the road between Pakhall and Mahdapore.

2nd. Felspar and hornblende. This is a loose crumbling variety which wears, and is finally decomposed by the weather. Common.

3rd. Quartz, felspar and actinolite, the latter mineral taking the place of the hornblende and giving to the rock a greenish colour. This variety may be seen in the bed of the tank at Nagwarum.

4th. Quartz, felspar, hornblende and mica—sought by the natives to make their hand-mills,—lime crushers,—on account of its toughness. These constitute the chief varieties.

It is often difficult to distinguish this from the preceding, but its stratification when it occupies a position in the gorges of hills cannot be mistaken: this happens at the iron hill twelve miles to the west of Warungul, where it passes into hornblende schist and, from its broken and dislocated appearance, must have been subjected to some disturbing cause: it is usually of hornblende and felspar with some quartz. The oxygenated iron ore occurs in this formation: the hornblende first gives place to the iron ore, gradually the other minerals disappear, leaving the iron stone a nearly homogeneous mineral but still preserving the layer-like form of the parent rock.

The sandstone occupies the extreme east and north-east of the Circar, meeting with the granite a half-mile on the Warungul side of the Pakhall lake, of which it forms the basin. At Bagartepett, on the road from Humnuncondah to Mahdapore, there is a band of argillaceous limestone, of the breadth of three miles, intervening between the granite and the sandstone, much disturbed at its contact with the former, and probably underlying the latter, to a wide extent, as it appears again in that position in the Godavery river to the north; and it would seem to be a process sent down from the sandstone of that locality, possessing the lithologic characters of that formation as described by Voysey. The Coorwah talooka of the Pakhall pergunna is a congeries of sandstone hills covered with wood. The low undulating

hills of this formation contrast strongly with the abrupt peaks and rugged summits of the neighbouring granite.

The greenstone veins penetrating the sienite are found in this district, but not of the breadth or extent of those in the neighbourhood of Hyderabad—so much so that there is reason for believing, on the testimony of the natives, that the stone used for the ornamented pillars and cornices scattered so profusely over the ruins of Warungul was not quarried in the neighbourhood but brought from some distance. The only mineral I observed in the greenstone was a greenish felspar—crystallized. Mortars are constructed of this stone, in great use among the native druggists.

Quartz veins also occur, varying in thickness from a rupee to several feet; the superior hardness and durability of the quartz causes it to appear as a ridge in the sienite.

Hard as the sienite and gneiss are, there are few rocks more subject to disintegration and decay, and to consequent change; of these three are particularly well marked.

1st. The ochreous degeneration—where the hornblende becomes decomposed, and a red or, more generally, a yellow ochre is produced. The appearance put on by these rocks while undergoing this change so nearly approximates to that of sandstone that from a hand specimen an experienced observer even might be deceived regarding the real characters of the rock; but from this error he would be freed by breaking it, when a nucleus of the original rock would be discovered, surrounded by decomposing layers of ochreous matter.

2nd. The steatitic degeneration—for such it is according to the opinion of some German mineralogists, who regard it as a change analogous to the adipocere of animal matter—happens at a village called Dummnapilly, in the Vizianaggar pergunna, where it is mined and shaped into pots and cups by the blacksmiths. The rock at the surface is gneiss with hornblende and mica for two of its ingredients, and much less steatitic than what is found at some depth, so much so as to render it unfit for being cut into vessels (can the potstone of Mysore mentioned by Buchanan be this rock?), but it differs in its lithologic character from that mineral. Pencils for schoolboys are manufactured from it, and also lings for the use of the Lingayets around Warungul.

3rd. The *mohrum*, in which felspar would seem to be originally the predominant rock; it is frequently cut by veins of disintegrated limestone, and nodules of hard limestone are also found in it: may not the lime have acted as a powerful agent in forwarding the decomposition by the formation of neutral salts?

Minerals.

1st. Oxygenated iron ore, sp. gravity 4.3 to 4.8, giving an average of 4.5, extensively found and worked.

2nd. Titaniferous iron ore, sparingly found and not worked: a specimen in my possession was dug up in sinking a well at Hunnumcondah in the soft *mohrum*.

3rd. Titaniferous iron sand, found abundantly in nullas, where its weight prevents its being swept down with the sand: not worked.

4th. Hæmatite, found near Warungul, scattered on the surface of the ground: not worked.

5th. Pisiform iron ore, universally diffused throughout the granite: not smelted.

6th. Yellow and red ochre, the last found embedding the oxygenated iron ore: it is used by the common people for daubing their houses with.

7th. Milk quartz, and occasionally rose quartz, is met with: the last is sometimes cut for ring stones, but it is reckoned of little value. I have not observed any of the amethystine quartz, so common elsewhere, about Warungul.

Limestone has been already mentioned: it is burned by the *dhobees* and other low castes, and sold for one rupee a maund. The subcarbonate of soda mixed with deliquescent salts is everywhere abundant over the Circar, efflorescing on the soil: it is used in its rough state by the *dhobees*, but is never refined for exportation.

Besides these minerals others were brought to me from the hills, which do not belong to the sienitic rock—jaspers, cornelians and agates. On inspecting them very distinct evidences of their having been cut into the form of cutting instruments and knives showed themselves. Those shaped as cutting instruments seem to

have been thrown aside on being found to be useless, as they had invariably a jagged uneven edge, and appeared as if broken off short. The arrowheads, though rude, are pretty distinct. The same fragments were discovered by Dr. Primrose, of the Nizam's service, at Lingsoogoor, to the south of the Kistna, where the rock is of the same description as at Warungul, and their analogy to the obsidian knives of Mexico, where he had been resident, was noted by him.

It is useless to conjecture respecting the people who employed these instruments, especially in India, where the use of iron has long preceded every authentic or even conjectural history.

It has been stated that the sienite is the prevailing rock, and the country takes its prominent features from the oft-described and familiar characters of that well-known rock.

1st. The solitary herbless dome-shaped hill. Drawing I.

2nd. The feather-bed appearance of Macculloch. Drawing II.

3rd. The prismatical-fractured summit. Drawing III.

4th. The tors and logging stones, which give a wild and fantastic appearance to a country, and which have been lately mistaken for real boulders, but to which they have no geological relation whatever.

This singular structure has seized on the native imagination, and the monkey god Hanumaun is said to have piled up these stones, as spare ammunition in the great war of the Ramayana.

Drawing IV., marks on single block. Drawing V., one block piled on another. Drawing VI., four and five tiers of blocks; the last two may be deemed rare, two or three being the most common.

Drawing VII. shows a cave in the sienite extending inwards for fifty or sixty feet, and about two and a half feet in height: this is not common; fragmentary portions of rock sometimes form pseudo-caves. The natural aspect of the Circar is certainly hilly, and the country about Warungul, though little elevated beyond the usual seventeen hundred feet above the level of the sea which marks the eastern portion of the Deccan, is the watershed—the “divortio aquarum” from whence both the Godavery and Kistna are supplied with the sources of tributary streams. At the southern extremity a group of hills run east and west, and communicate with the hills of the Vizianuggur talooka.

Ten miles to the N. W. of Warungul another group, the Chandragiri hills, spring from the plains with pinnacled summits. The iron hills, as they are called, fourteen miles due west of Warungul, and of which a representation is given in Drawing VIII., form a double range, varying north and south, with a gorge between. The ridge towards the east (the one represented) terminates abruptly after a course of four or five miles, but the western doubles in itself and throws out a spur to the north-west. There are, besides, smaller groups, as at Hunnemcondah; but there, as elsewhere, the isolated hill is the prominent feature of the landscape. On the other side of the Chandragiri group, and towards the Pakhall lake, the country gets flatter and uninterrupted by hills, whether single or clustered.

Soils.

These may be divided into the black, red and sandy.

The black is the regur of other parts of India, its productive properties being chiefly affected by the quantity of lime it may contain.

1st. The cutta reguree, a stiff loam with little soluble matter and not much lime; in very rainy seasons this is found a good soil for jowaree.

2nd. The regur, the well-known soil of all India.

3rd. Paurah, a good garden soil with about seven per cent. of lime, too pulverized, and not in fragments as in the two last.

4th. Pawtee zumeen, also a garden soil, with about the same proportion of lime as the last, but that mineral not so much in powder.

5th. Sota zumeen, a whitish-coloured soil, differing little from the last; it is cultivated in the rains for the abee crop of rice.

6th. Choona ka puttur ka reguree, a rough soil very rich in lime—nearly twelve per cent.: good for jowaree, gram, &c.

7th. Chowka reguree, a transition from the black to the red soil—not much lime.

8th. Cuttay sowda—a black soil, with quartz, pebbles and a small proportion of lime, not above one per cent.

9th. Rewa zumeen, a finely pulverized red soil well qualified for poonass crops—it has a dash of lime in it.

10th. Yerrah chukkoo, also a red soil but not so fine as the last—parts easily with its moisture ; contains a small proportion of lime ; good soil for some of the poonass crops, yellow jowaree, bajree, tillee, hurra mong.

11th. Ghersoo boomi, a strong red soil, fitted also for poonass crops.

12th. Pala sauroo.

13th. Sallee doobboo—mere sands, scarcely ever cropped ; the latter, it is said, may produce cooltee.

1st. Kara panee.—This water contains a proportion of subcarbonate of soda, and of muriates, chiefly magnesian. On the evaporation of six ounces there were eight grains of the subcarbonate of soda and four of deliquescent salts, which yielded a thick precipitate to the phosphate of soda and ammonia, and but slightly became dim on the addition of oxalic acid : compared with distilled water it was as 1,000 to 996, from which it may be inferred that it consisted of

996 parts of water,

2·5 of subcarbonate of soda,

1·5 of muriate of magnesia with a trace of lime.

This water is preferred for most garden produce—for fenugreek, tobacco, and vegetables generally, save the *Arum nymphaefolium* : also for decocting the mahwa previous to fermentation ; it acts on the brass lota ; it is also used in preference for Indian corn.

2nd. Meeta panee.—This left on 996½ grains scarcely any residuum ; it is the common drinking water, and reckoned good for irrigating rice ; sp. gr. to distilled water as 997 to 996.

3rd. Sowta panee.—This water is excessively sweet, but said not to slake the thirst ; its taste depends on about two grains and a half to the ounce of water of subcarbonate of soda that exists in it ; its sp. gr. to distilled water was as 997½ to 996.

4th. Sowka panee.—Neither very sweet nor bitter ; its sp. gr. 996½ to 996 of distilled water, which may be accounted for by its having got putrid and becoming impregnated with sulphuretted hydrogen to the expulsion of atmospheric air. This water is good for the irrigation of ginger, radishes, cresses and garlic, and also for wheat and rice—never used for tobacco ; wholesome too for drinking, as it is said by *hakeems* to be more warm than cold. It contains a very small proportion of subcarbonate of soda, and its medical properties may be traced to a portion of combined sulphur it may contain.

Considering the shortness of the time that has occurred since my undertaking this duty, I need not offer any apology for forbearing to enter into any detail respecting the climatology of the Circar : suffice it to say the climate would appear to differ little from that of Hyderabad, a bad season in the one being universally a bad season in the other. The hot season of last year was unusually cool at Hyderabad, the same thing happened at Warungul, and the heavy rains of September, which have since filled the tanks, set in at both places on the same day. The divisions of the year deemed natural by the agriculturist, and which in the rains he watches with intense interest, are in number twenty-seven, consisting of from fourteen to fifteen days each. It is a puzzling question to the Brahmin astrologer how he can make twenty-seven *cartees* of that duration out of the solar year, but he evades it by saying this duration is shortened in the hot months : they are well known to be the lunar changes of the sidereal year. Although the real commencement of the year is two months before, to please the cultivator the first cartee is made the one which has the greatest interest for him.

1st. Margasirra.—If this cartee is ushered in by a full moon a good augury is derived from the circumstance : a new moon is not so favourable ; if rain falls there will be a good fall for the next five carteets.

2nd. Ahredrah.—Tillage and sowing the poonass begins ; insects appear in great numbers.

3rd. Pedda-poosheala.—Insects commence to attack the young poonass crops ; rain less.

4th. Chinna-poosheala.—Abee crops of rice sown.

5th. Asaleshoo.—Rice sowing continues.

6th. Mugha.—Crops of abee rice sown ; if it thunders in this cartee rain will fall for the next five cartees.

7th. Phoobha.

8th. Ooturhah.—Much rain to be looked for ; oord and cooltee sown.

9th. Husturhee rubbee.—Crop sown ; poonass crop ripening.

10th. Chitthee rubbee.—Crops continue to be sown ; yellow jowaree and the millets reaped.

11th. Soathee.—When rain falls in this cartee it is considered favourable ; if there be lightning the sign is deemed good.

12th. Vishaka.—If rain falls now it is looked on as unfavourable to the crops and fruit of all kinds.

13th. Anuradha.—Tabee crops of rice sown.

14th. Jestha.—Continue to sow tabee.

15th. Moolha.—If it blows in this month rain falls. .

16th. Poorwashadah.—Sow melons, gourds.

17th. Ooterashadha.—Hot weather begins.

18th. Srewannam.—Hot weather fairly set in.

19th. Danistha.—Rice ripening.

20th. Shitaveshum.—Rice ripens and becomes fit for the sickle.

21st. Poorwabadrah.

22nd. Ootrabadrah.

23rd. Rewuttee.

24th. Ashwinnee.

25th. Burnhec.

26th. Krootika.—Black soil cracks.

27th. Rohinee.

The grain chiefly cultivated in this Circar is rice, and of this there are many varieties, of which the chief are as follows :—

1. Batee-ka-dhan—a middling-sized grain with a reddish husk ; it is considered of light and easy digestion, and is given to invalids.

2. Gunta moola kulloo—a large grain with a whitish husk, thought wholesome and to be good for rheumatic pains.

3. Gurka sunnaloo—a small grain ready in three months after sowing.

4. Patcha gunnerloo—grows in the neighbourhood of Pakhall lake—esteemed a good grain.

5. Soopuaraynaloo—an abee rice ; sprouted seed used and great care taken in transplanting ; it is productive and is a good rice.

6. Bungaroo tignaloo—of a golden colour, hence its Telingee name ; a small grain.

7. Koonkaowapoophloo—called the small almond rice from its red colour and form.

8. Moodgootomelloo—a small red grain.

9. Kakalapuchelloo.—This grain in husk has a winged appearance.

10. Yeepawudoo—a large rice.

11. Mussoora wudloo—a middling-sized grain with a darkish husk, compared to the hide of a donkey in colour.

12. Pullymusaloo—tiger's-beard rice.

13. Goodarce ooskilloo—a sweet-smelling small rice.

14. Chitteemootealoo—pearl rice, sweet-smelling.

15. Goombojooloo—a large rice, colour compared to the flower of the tamarind ; with this sort Mahdev sprinkled his wife's head.

16. Kutta keesumuraloo—a productive variety.

17. Boolcemachelloo—sown on saltish soil, reddish, a coarse rice.
18. Tellamachelloo—a cheap coarse rice.
19. Tateepelloo—like sago, small husk of a dark colour, sweet-smelling—a dear rice.
20. Kakerekulloo—an abee rice, dearest of all—a small quantity sown in this Circar—husk darkish.
21. Chamakooraloo—a flavourless rice—large, cheapest of all.
22. Chundramunkaloc—husk silvery—a good rice.
23. Kongagoorloo—husk whitish.
24. Patee moolkaloo—small, white, not common.
25. Adengaloo—a coarse rice used by the poorer classes—grows in land much flooded.
26. Boorawedloo—coarse.
27. Reddy sammee kat killoo—antimony rice, small, sweet-scented.
28. Donrasenkenuloo—odourless, large and coarse.
29. Mylasamaloo—a small coarse grain.
30. Dodasamaloo—large, whitish.
31. Gareederoudloo—reddish husk, and even when unhusked the grain retains the colour ; used by the poor.
32. Boonjaloo—also coarse, chiefly sown in the dry bed of the Pakhall lake by the Surmooneewar.

Most of these varieties remain in the ground from three to four months ; the transplanted kinds require a few weeks more to ripen, but transplanting amply repays the additional trouble and expense. The fifth variety, the Soopuaraynaloo, an abee crop which is transplanted, requires five months and a half to ripen ; and the 19th, Tateepelloo, and the 20th, Kakerekulloo, both fine varieties, five and six months respectively.

Dry Grains cultivated.

Andropogon Sorghum—three varieties, the yellow, red and white—Jonaloo (Telinge). Andropogon bicolor—black jowaree.

Zea Mays—Indian Corn—Muckkae.
 Panicum spicatum—Bajree—Sudgaloo (T.).
 Panicum italicum—Kunghne—Kooraloo.
 Panicum hispidatum—Boora sama.
 Another variety—Pota sama.
 Panicum frumentaceum—Shama.
 Panicum miliaceum—Worgloo.
 Paspalum scrobiculatum—Aruga.

Triticum æstivum—Wheat.—Of these the yellow, white, and red jowarees are in common cultivation, and also the shama. The cultivation of the Indian corn is becoming more frequent every year, and bread and other articles of diet are made from its meal.

The boora and pota sama are coarse grains, used when husked like rice by the poorer classes.

The aruga is also a coarse grain, said to produce rheumatism, but it is well-tasted. The black jowaree, of which a small quantity only is sown, has the reputation of being a heating grain.

Pulses cultivated.

Phaseolus radiatus—Hurrah Moongh—Putsa Paysaloo.
 Phaseolus Mungo—Kala Moongh—Nulla Paysaloo.
 Phaseolus—Bubberloo.
 Dolichos Lablab—Anamooloo.
 Glycine tomentosa—Cooltee—Woolaraloo.
 Cytisus Cajan—Toor—Candaloo.
 Cicer arietinum—Chenna—Shamgheloo.

Oil Plants.

Ricinus communis—Arendee—Amcedealoo—two varieties, one with a small, the other with a large seed.

Sesamum orientale—Tillee—Nooloo.

Cordage Plants cultivated.

Hibiscus cannabinus—Umbarreh.
 Crotalaria juncea—Sunn.

Garden Produce.

Tobacco, red pepper, brinjal, bendy, onions and garlic, sweet potato, radish, *Dolichos fabæformis*, &c.

Of the cucumbers, a very important article of diet, there are cultivated or in use the following :—

Momordica charantia—Korella.

Momordica diœcia—fruit and root both eaten.

Luffa pentandra.

Luffa acutangula.

Luffa amara—grows wild, used in diet and medicine.

Cucurbita lagenaria.

Cucurbita Pepo.

Cucurbita citrullus.

Cucumis Melo.

Cucumis sativus.

Cucumis momordica.

Cucumis utilisissimus.

Tricosanthes anguina.

There are two varieties of cotton cultivated—one a nankeen cotton, and the other white, solely for home use. There is also a small quantity of sugar grown in the pergunna of Bellecondah.

The greens used in this Circar are so very numerous that though some be cultivated the whole will be given in the list of useful plants, according to the natural arrangement, which are produced in this Circar.

Plants used in the arts, and for food and medicine, which grow in the Circar of Warungul.

Anonaceæ.—*Anona squamosa*—grows wild throughout the district : its fruit is seldom allowed to perfect itself, being generally plucked before maturity ; in seasons of scarcity and famine its seeds are ground and the meal eaten by the natives.

Menispermaceæ.—*Cocculus cordifolius*—a good bitter used in medicine.

Nymphaeaceæ.—The tuberous roots of all the plants of this family are eaten by the poorer classes.

Papaveraceæ.—No opium grown ; the *Argemone mexicana* grows abundantly, but neither seeds nor plants are turned to use.

Capparidææ.—*Cynandropsis pentaphylla*—wild mustard seeds, collected by the lower classes and exchanged for equal quantities of coarse millet.

Cleome viscosa, common—besides other *Cleomes* ; two or three species of *Capparis*, of which the fruit is boiled and eaten by the natives. The leaves and bark of several of the species are used medicinally. Antiscorbutic.

Olacineæ.—*Ximenia ægyptiaca*—a very common stunted shrub growing on poor soil, of which it is an indication ; its hard capsules are used in fireworks.

Caryophyllaceæ.—Two species of *Mollugo*, an infusion of which is used as a fever drink.

Malvaceæ.—This natural order yields plants for poultices, fomentations, &c. ; there are many species growing in this Circar, mostly all of which are turned to some account in diet or medicine.

Bombaceæ.—The wood of the *Helicteres Isora* is used for making some agricultural instruments. The *Bombax malabaricum* affords a timber for the construction of the garim, an instrument for raising water.

Byttneriaceæ.—The *Sterculia urens* yields a gum like tragacanth, and a wood used for scabbards.

Tiliaceæ.—Two species of *Corchorus*, common ; the tenacity of their fibres is sometimes taken advantage of for the construction of cords.

Two species of *Grewia* are in common use—one, arboreous, for agricultural instruments ; the other, a shrub, is employed by the Dhungers for making cages for their lambs and kids, and by others for wattle. The fruit of several species are eaten by the common people, and the leaves by animals.

Aurantiaceæ.—The lime is common, the citron rare ; *Feronia elephantum* and *Ægle Marmelos*—the capsules of the latter used as snuff boxes by the Brahmîns. The *Bergera Koenigii* in gardens.

Sapindaceæ.—*Sapindus detergens*—soap nut tree—and another *Sapindus*.

Meliaceæ.—*Azadirachta indica*—the tree sought after for its leaves and timber.

Cedrelaceæ.—*Swietenia febrifuga* and *Chloroxylon Swietenia*—the first common, its bark used by the carpet weavers to dye their cotton thread a dingy red. On the sandstones the latter grows to be a pretty large tree.

Rhamneæ.—Several species of *Zizyphus*; *Zizyphus microphylla* is a very troublesome plant to the agriculturist, being very difficult to eradicate.

Terebinthaceæ.—Some varieties of the mango yield tolerable fruit; the *Buchanania latifolia*, *Boswellia thurifera* and *Garuga pinnata* are all met with, also *Anacardium occidentale* and *Semecarpus anacardium*.

Leguminosæ.—Besides the cultivated species there is the tamarind, growing to a large size, and yielding an important article of diet. *Butea frondosa*, commonest of all, along with its congener the *Butea superba*; it yields the East India kino, not one ounce of which is collected; the bark of both is used as a cordage, the leaves rolled up are used in smoking tobacco. Two species of *Dalbergia*, *latifolia* and *Sissoo*, furnish hard wood; from the seed of the *latifolia* there is expressed an oil. Five or six species of *Acacia* growing in the Circar yield timber. *Cæsalpinia Bonduc*, *Cassia fistula* and the *Cassia absus*, from the seeds of which is prepared the valuable eye-snuff called *Chucksoo*. Two species of *Bauhinia*, timber useful for house building and to the cultivators, and their bark a cordage. The *Trigonella fœnumgræcum*; seeds of the *Cassia obovata* used in the preparation of indigo, and the leaves as greens. The seeds of many of the species eaten in famine, particularly of the *Indigoferæ*; the *Indigofera*, from which a coarse indigo is made; and the *Abrus precatorius*.

Combretaceæ.—*Terminalia Catapa*, in gardens; *Terminalia Bellerica*, *Terminalia Chebula*—the last two common on the eastern part of the Circar; *Pentaptera tomentosa*, a timber tree; *Combretum ovalifolium*,—of this extensive climber use is made in basket-weaving, &c.

Myrtaceæ.—*Punica Granatum*, common in village gardens; *Jambosa vulgaris*—bark useful in the preparation of indigo, &c.; and *Barringtonia acutangula* is one of the most beautiful of the forest trees of the Circar.

Cucurbitaceæ.—Besides the cultivated species the colocynth is very abundant.

Portulacaceæ.—Leaves of the *Trianthema decandra*, and two species of *Portulaca*, eaten as greens.

Rubiaceæ.—Two species of *Naucllea* yield timber; some *Gardenias*, three at least, *deccamulle* or *cumbi gum*, so much used in native medicine, and one or two species afford a fruit edible on being boiled. *Randia dumetorum*, *Ixora parvifolia*—timber of the last useful.

The *Morinda citrifolia* is cultivated extensively on the black soil for its dye; and the *Oldenlandia umbellata*, the root of which yields the *Cherwil dye*, is the most common of the wild plants.

Compositæ.—Several plants of this family grow, to some of which medicinal virtues are ascribed, more fanciful than real; of these are the *Cæsulia axillaris*, *Eclipta prostata*, *Xanthium indicum*, &c.

Sapotaceæ.—Two *Mimusops*; *Sideroxylon tomentosum*; and the *Bassia latifolia*, which grows in the sandstone districts—both seeds and fruit turned to account.

Ebenaceæ.—*Diospyros melanoxyton*, wood of little value, fruit eaten.

Jasmineaceæ.—*Jasminum Sambac*, in gardens; *Jasminum trinervii*, very common; flowers of all species of jasmine looked on as an external cooling application. *Schrebera swietenoides*, in the Pakhall and Chelwace pergunnas; hard wood.

Strychnaceæ.—*Strychnos nux-vomica*, common on the granite hills; *Strychnos potatorum*, rarer.

Apocynæ.—*Wrightia tomentosa*—leaves added to indigo in the preparation of the dye; very common; wood used for making boxes. Two species of *Carissa* yield edible berries. *Monetia tetracantha*, one of the most common jungle shrubs.

Asclepiadæ.—Two species of *Ceropegia* yield tuberous roots which are eaten by the natives.

The two *Calotropis* common—also the *Hemidesmus indicus* and the *Sarcostemma viminale*.

Gentianeæ.—*Gentiana verticillata*, a common plant gathered by the natives as a bitter.

Bignoniaceæ.—*Bignonia spathacea*, wood used in house-building.

Pedaliaceæ.—*Pedaliium murex*—very common.

Convolvulaceæ.—The leaves of two or three species of this family are eaten as greens and reckoned very wholesome. *Ipomæa coerulea*—country jalap—common.

Solanaceæ.—The potato has been nowhere introduced, although the red soil would suit it well; leaves of *Solanum rubrum* used as greens. *Solanum indica* and *jacquini* used medicinally. *Datura alba* and *fastuosa*, common.

Labiataæ.—*Ocimum sanctum* and one or two other species of the *Phlomis*: two or three species yield greens under the name of *Tomi*; *Premna latifolia*—leaves eaten in curries; *Premna tomentosa*, the wood of which is useful; *Grewia asiatica*, sought for in house-building, as the white ants do not attack it; *Tectona grandis*, but it does not grow to be a large or valuable timber tree.

Acanthaceæ.—*Lepidagathis cristata*, used in veterinary medicine, and as a charm, especially by the weavers, to keep off the evil-eye. *Bārleria prionitis*—leaves yield a blue dye, and are in consequence mixed with the indigo leaves in the preparation of the dye; *Justicia paniculata*, the well-known *creyat*, is very common.

Plumbagineæ.—*Plumbago zeylanica*—bark used as a blister.

Nyctagineæ.—Leaves of the *Boerhaavia prostrata* eaten as greens.

Amaranthaceæ.—Almost every plant of this family affords edible greens—the *Celosia argentea*, *Achyranthes aspera* and *lanata*, *Amaranthus polygamus*, *oleraceus*, *tristis*, *spinosus*; some of the *Amaranthes* are cultivated.

Chenopodeæ.—Much the same may be said of this family—the *Basella alba* is in great estimation as a potherb.

Santalaceæ.—*Santalum album*—valueless.

Aristolochiæ.—*Aristolochia indica* and *bracteata*, both bitter and medicinal plants.

Euphorbiaceæ.—A species of *Phyllanthus* with white fruit which is eaten by the natives, and one of red, of which the branches are used for tooth brushes. *Phyllanthus emblica* very common. *Croton plicatum* yields a violet dye. *Jatropha Curcas*, also the *Cluytea collina*, the wood of which is used for building.

Urticeæ.—*Cannabis sativa* in gardens.

Ulmaceæ.—*Ulmus integrifolia*—durable wood. *Celtis Orientalis*—cordage sometimes made of its bark.

Artocarpeæ.—*Ficus indica*—bark produces cordage. *Ficus religiosa*, *Ficus glomerata*. There are others.

Piperaceæ.—*Piper betel*—cultivated in small quantity about Comlapoor.

Alismaceæ.—Both *Sagittarias* occur—leaves of *sagittifolia* eaten as greens.

Bistiaceæ.—*Pistia stratiotes* very common in tanks.

Scitamineæ.—Ginger cultivated but not to a great extent, and also turmeric. *Zingiber Casumunar* grows in the eastern part of the Circar.

Musaceæ.—A coarse kind of plantain is grown in gardens.

Hemerocallidææ.—*Sansevieria zeylanica* very common—a cordage plant used by the Coonbees, &c.

Dioscorinæ.—Tubers of the *Dioscorea pentaphylla* are dug up throughout the Circar, where it is very common.

Palmeæ.—The date palm is very common, it is tapped at a very early period of its growth and seldom yields much juice after the age of twenty-five years. Mats and cordage are very extensively made from its fronds. The *Tar*, *Borassus flabelliformis*, is the palm that from its frequent occurrence gives a character to the country. The young plants are defended from cattle by thorns, and the more industrious loosen the ground about them once or twice a year by the plough, but in very many cases this is neglected. The *Tar* is said to yield sap for three generations and to be ready for tapping in ten or a dozen years. The toddy varies with the

season and age of the plant. A bad grain year is said to be a good year for the Kullals. The trees are sometimes tapped thrice a day. The *Caryota urens* grows to the eastward but it is not a very common palm; it yields a great quantity of sap; cordage, baskets and fans are made from the fronds of this palm, as well as from those of the Tar. *Calamus Rotang*, the rattan, is found in Sumtamunnum and the *Chelwace pergunnas*.

Pandaneæ.—*Pandanus odoratissimus*, leaves made into mats.

Typhinæ.—*Typha elephantina*, culms formed into hoods by the Coonbees to protect them from the rain.

Aroideæ.—Roots of several species eaten.

Gramineæ.—Besides the cultivated grains several species of *Panicum* and *Eleusine* yield food to the poorer classes; the seeds are swept off the ground by an instrument called *Woorapilly sapa*, the form and manner of which will be better understood by the drawing. A species of *Arundo* yields pipes for the shrill music of the religious mendicants. The *Saccharum cylindricum* yields a strong cord in great use among the Coonbees—with this their cots are usually corded. A *Saccharum* that grows to the eastward furnishes reeds for writing. The *Ischœmum pilosum* grows where there is a black soil, also the useful *harialec* (*Panicum dactylon*), the sacred *Poa*, the Doorb grass and other species of *Poa*; the *Rottboellias*, grown in the Circar, are much used for thatch.

It may here be mentioned that the Circar produces no timber valuable enough for exportation. The teak, ebony, sandalwood, satinwood tree and the blackwood are of short and stunted growth in the granite, and do not attain to any great size in the sandstone.

The *Pentaptera tomentosa* and the *Schrebera swietenoides* might be found to produce good serviceable timber, but with the teak of the Nagpore forests so near at hand they could never enter into competition.

The agriculture of this Circar, more especially as shown in the cultivation of rice, is exceedingly backward, not only when compared with Indian agriculture generally, but with that of the neighbouring country under His Highness the Nizam's dominions.

The rice crops are divided into two. 1.—The abee or rain crop, sown at the commencement of the rains, and reaped at their close at the beginning of the cold weather. These crops are either watered from wells, or advantage is taken of the early rains that fall on the low grounds. 2.—The tabee, sown in the cold weather and reaped in the hot—almost universally a tank crop.

The dry grain crops are the poonass or rain crop, answering to the khureef of Hindoostan, and the rubbee. The grains, pulses, and seeds of the poonass are yellow, red, and black jowaree, which ripen in four months, Indian corn, all the millets and the *Paspalum scrobiculatum*, green moongh, bubberloo, anamooloo, umberrah, and some gourds sown among the jowaree, also the sunn. The rubbee includes white jowaree, wheat, gram, black moong, toor, cooltee, castor oil; such seeds as ripen with the rubbee crops, although sown in the rains, are reckoned rubbee.

The cultivators usually content themselves with three ploughings of the rice grounds under a tank; they at first plough the ground twice, and after the compartments of the field have been prepared by women labourers the water is let in. When the weeds are sufficiently rotted they plough again, then harrow, and the soil is finally prepared for the reception of the seed by being rendered smooth, and all earthy lumps that it may contain being mingled with the mass. The day after sowing, the water is let off, but on the fourth day, after, a little water is again let in—and from the sixth day they continue watering every second day. The manure used is the droppings of sheep and goats. More care is bestowed when the water is procured from moats, for they then plough five times and use any kind of dung they can procure from the village, and often transplant. Sprouted seed is sown in Vizianugger and Bellecondah pergunnas, and generally in the southern division of the Circar, for the rain crop. One rice crop is the rule, two the exception. At Merecondah and in some parts of the Yelgoor pergumna, where the lands are leased

for several years at a quit-rent, there is some encouragement to cultivate carefully and make the most of their allotment, and here we find double cropping. When rice is attacked with insects bats' dung is thrown over the field, and sometimes asafetida, but more frequently decanullee is enclosed in a gourd and buried in the stream that irrigates the rice. An earthen pot whitened, or the skull of a bullock, is set up in the field to avert the all-dreaded evil eye. Hunnumaun's protection from evil spirits is invited by offerings of sugar, rice, and flowers, and the wrath of the Saktis they endeavour to avert by the promise of a goat. Rather more attention is paid to the cultivation of the dry grains, especially the jowaree, for on them the Coonbee depends for his subsistence, while the rice goes to pay his rent, satisfy other land dues, and, above all, his Bunnya creditor. The jowaree is sown broadcast, or with the drill plough, after the ground has been carefully ploughed at least twice, but in the stiffer soils, and where there is much grass, sometimes five times. They give the soil a light top dressing with the dust of bones and offal burnt, procured for them by the Choomars. On rare occasions it is manured with cow-dung, and with much anxiety do they watch the growth of a crop which is their sole resource against starvation, and sundry are the appliances which their ignorance and superstition suggest to render it productive. When the stalks are too red they sacrifice a goat and sprinkle the blood on the field. When too black, bats' dung, and when too white, milk and *dhye*, are thrown on the crop. When worms attack the stem two or three of the insects are rolled up in a cotton wick which when dipped in a mixture of ghee, sesamum, and castor oil is placed on a human skull raised on a stick, and then set fire to; if a skull be not procurable the shell of a land tortoise (the *Testudo geometrica*) is substituted: this last ceremony smacks of the human sacrifice of the Khonds, but the following can be typical only of such a rite now happily exploded. When a very serious blight threatens his jowaree, the Coonbee gets up at dead of night, collects five handfuls of earth from a Coomar's workshop, five from the dhobees' ghat, and five from the place where a corpse has been consumed; these he mixes together and forms, as well as he can, a human figure on the ground, the earth of which is then thrown on the field. The charm will have no effect if any one should be cognizant of it.

For the Indian corn the ground is prepared much in the same way as for the jowaree, but it is more frequently manured with cow-dung, and the seed is planted by the women in the drills formed by the drill plough, though not dropped through that machine.

This mode of sowing is also adopted in putting down cotton and horse gram. With the Indian corn, as with the jowaree, castor oil and some of the pulses is sown. The Indian corn is reaped in three months. For the pulses, particularly for moongh, there are several ploughings.

Wheat, of which a small quantity is cultivated in the Circar, is grown in gardens and irrigated.

Little care is bestowed on the cultivation of the millets, they are not manured, and two ploughings are deemed sufficient. For boora and potasama a mere clearing away the surface weeds is all that is thought of. The *paspalum* to have a good crop must be sown on a virgin soil. All kinds of jowaree with the exception of the black are sown with the drill plough, if the Coonbee can command one; the millets, sesamum, moongh, &c., are scattered.

The jowaree, castor oil and Indian corn are weeded at least once during their growth. White jowaree, moongh, gram and toor are taken up by the roots, the other grains and pulses are cut down. When the plant is young and tender, both of grains and pulses, it is subject to be attacked by grasshoppers, for which no remedy is known: destruction by locusts is rare. When threshed and housed, neem leaves are mixed with the seed to protect it from the weevil; when attacked by that insect there is no other remedy than exposing it to the sun's rays. The grain is usually stored up in wicker baskets made of the *Vitex Negundo*, *Grewia asiatica*, cow-dunged, but when intended for seed it is kept in large earthen vessels. A certain rotation of crops is observed in the dry grain cultivation:—

PHYSICAL FEATURES AND NATURAL PHENOMENA.

1st year yellow jowaree. 2nd year castor oil, moongh, sometimes cotton.
 On the Red Soils. 3rd year yellow jowaree, or some of the millets. 4th year fallow. 5th year fallow.

1st year a rubbee crop, white jowaree or black moongh. 2nd year a poonass crop, a millet or yellow jowaree. 3rd year a rubbee crop, castor oil, moongh or cotton. 4th year poonass—yellow, red, &c. jowaree and toor. 5th rubbee, and so on for ten years, when the ground is allowed to fallow for two or three years.

The fallow ground is neglected, which is not of much consequence in the black soil, but the red gets speedily covered with low-growing shrubs and bushes—the *Cassia auriculata* and *Zizyphus microphylla* shrubs, that both exhaust the soil and cost much labour to eradicate on the ground being again cultivated, but this, to tell the truth, the Coonbees seldom do, contenting themselves with burning them down and leaving the roots. Although perfectly aware of the benefits of a dash of lime in the soil they never think of loosening the stiff loams, or fertilizing the red soils by that application. The garden cultivation presents no remarkable feature save its slovenliness; even from tobacco they occasionally withhold manure, although both for it and red pepper cow-dung is generally used, but the employment of this substance for fuel materially interferes with its use as a means of enriching the ground. A small quantity of pawn is cultivated at Camlapoor.

The size of farms is estimated by the number of ploughs. A Coonbee with four ploughs is reckoned well-conditioned; two ploughs is the ordinary number belonging to one cultivator, but he is deemed very poor if he can only muster one; eight ploughs are looked on as a large farm—seldom the tillage of the mere Coonbee, but of the Zemindar, Putwarree, rich Brahmins, &c., who may possess double the number or more. The cost of setting up a couple of ploughs is estimated at a hundred rupees—Rupees 50 for two pairs of bullocks with their harness, and Rupees 50 for the price of implements, seeds, and for his subsistence till his crop be mature. Twenty returns of rice is looked on as a fair crop, and no more striking fact can show what unskilful agriculturists they are. Much more, however, is looked for from their dry grains, when, if the season be very favourable, eighty returns are expected, but more commonly from sixty to forty is as much as they reap. The yellow jowaree is very productive, but the Indian corn, if the land has been properly tilled, exceeds all in productiveness, a quarter of a maund sowing producing two to one and a half khundeeds. A khundee of yellow jowaree from a quarter of a maund of seed is regarded in the poonass as a very good crop, and in the rubbee the same quantity of white jowaree from double the quantity of seed is esteemed a fair return. In the rubbee the seed is sown more thickly, and toor usually is grown with it.

Expenses of the Tabee Rice Crop and its return to the Coonbee.

<i>Seed one Maund.</i>			<i>Produce one Khundee.</i>			
Price of seed	Rs. 2	0 0	To the Balowbek	6	CONSOOS.	
Women's labour	0	14 0	" Government	9	M. 1 "	
For watering	0	8 0	" Putwarrees	2	"	
Price of labour, ploughing, hired labour	2	8 0	Dorwa, Havildar, Patell, &c.	1	"	
Other expenses, poojas, &c.	0	2 0	8½ Maunds remain to the Ryot, at Rupee 1			
			a Maund	Rs. 8	8 0	
	Rupees...	6 0 0		Deduct	Rs. 6 0 0	
					Remainder	Rs. 2 8 0

It will be observed that he has to pay double the price for his seed that he gets for his produce, but this is owing to the care necessary to be taken of seed corn, which is always presumed to be of the best quality; besides, the Coonbee is usually in debt to the Bunnya, who affords him the seed.

The first and most common tenure is the buttace or adhenath, where the Government and cultivator divide the produce equally after the deduction of six consoos on the khundy ($7\frac{1}{2}$ per cent.) for the Balowbek, with the exception of the Putwarree, who receives two consoos from the ryot's share, and the Zemindar, Havildar, Dorwa or Patell one consoo; when the land is manured and irrigated from a well the Government demand is one-third,

two-thirds going to the ryot with the usual deductions. In the poonass when lands are tilled under this tenure eleven parts go to the ryot and nine to Government, and in the rubbee eight parts to the ryot and twelve to Government, with deductions as before. In sowing grain if the seed is advanced by the Bunnya the produce is divided into three parts—one for the ryot, one for the Bunnya, and one for Government.

2nd, Muckta cowl.—This is simply paying an annual quit-rent for an allotment of land to be held for a certain period, seldom under ten years. It is on this tenure that garden lands are cultivated, the rent of which per beegah varies from 4 to 17 rupees; but the common rent for red soil is rupees 2 a beegah, and for the black rupees $2\frac{1}{2}$ to rupees 3 and 4, all depending on the quality of the soil.

Istawa cowl.—For taking in waste lands an increasing rent for the first three to five years, when it becomes fixed; red soil is on this ground rented.

1st year $\frac{1}{2}$ rupee per beegah.	A shorter period is allowed for the black soil:—
2nd year 1 " "	1st year 1 rupee per beegah.
3rd year $1\frac{1}{2}$ " "	2nd year 2 " "
4th year $1\frac{3}{4}$ " "	3rd year 3 " "
5th year 2 " "	

Ijara cowl.—This is when a native of substance rents a whole village from Government and sublets it, settling himself with the Government; when the middle man is any one but a zemindar the cowl is called ijaree; when a zemindar is such, then it is called surbusta.

Bykarree cowl.—When the inhabitants of one village rent a portion of the land of another, this is a tenure for a year and is given on favourable terms, as the Pykarrees are supposed to lose time and incur fatigue by the distance they have to come. It is a tenure liable to be abused, as frequently the inhabitants of a village leave the lands of their own village untilled if they think they can rent the lands of another on more favourable terms.

Nagur cowl.—Plough tenure, usually from three to four years, and granted only for the cultivation of dry grains; as much as Rs. 15 a plough is occasionally paid for this tenure. It is also liable to objection, as the ryot is apt to cultivate in a slovenly manner, that he may break up as much surface as he can, and it is disadvantageous to Government, as the ryot may keep three pairs of bullocks for his single plough.

Koolharee.—The hatchet tenure; this exists among the Coorvars of the Pakhall, &c., purgunnas. It is as much as one man can clear with his hatchet; from 4 to 8 annas is the rent for each hatchet.

The quantity sown is the ancient Hindoo measure of land, and in the buttaee tenure it is still in force. Yet the word beega is constantly made use of in enams to temples in mceras lands, and in some of the tenures; and that a fixed beega was established throughout the country is placed beyond all doubt by a linear measure cut in a rock adjoining a temple in the neighbourhood of Camlapoor, with an inscription in Teloogoo setting forth that this measure is the length of sixteen cubits, and that of this ten go to measure the side of a beega: in other words the beega consists of twenty-five thousand six hundred square cubits, or six thousand and four hundred square yards, which is just the Madras cawney, or one acre, one rood, eleven poles and seventeen and a quarter yards. One plough, it is said, is capable of tilling two beegahs at a time—that is, two beegas in the poonass, and two in the rubbee, or two in the abee and two in the tabee; but this is rather a rough estimate, as much must depend on the quality of the bullocks, and also their number. Six consoos of rice are looked on as one beega's sowing, and another measure more rude is applied to land producing dry grains. As much land as a man seated on a bench can scare the birds from is said to be the labour of a plough, or two beegas, but this would seem to be very much over-rated.

Enam lands are constantly classed with jagheers. In this Circar there are three killadaries, those of Warungul, Zuffergur, and Thatconda, with two villages in the first, one in the second, and one in

Jagheere.

the third, nominally for the support of the forts, but in reality for the subsistence of the killadar. The killadar of Warungul is a man of family, connected with the Nizam by marriage; he has a very indifferent reputation; his revenue is said to be Rs. 5,000 and upwards a year.

The killadarship of Zuffergur yields about half that sum to the killadar Kyunt Yar-jung, and Thatcondah Rs. 5,000 to Kajan Allikhan.

The Nawab Sooraj-ool-Moolk holds pendant with four adjacent villages as his personal jagheer for subsistence.

Balapursad, and Rajah Nanneck Buksh, sons of the late minister Chundoolall, held jagheers, as they are called, but without being subject to the entertainment of troops—in fact enams, the first to the extent of Rs. 38,820, from sixteen villages in the talook Kowlapoor, pergunna Hussenabad, and from twelve in the talook Merrecondah, a few miles south of Warungul. The second Rs. 15,203, from forty-one in the pergunna of Yelpecondah. Both these enams were considered forfeited soon after the resignation of their fathers in 1813, and their revenues have been since collected by Government.

To Jawood-ood-Dowla, a nobleman in the city, there has been assigned a small personal jagheer of Rs. 4,600 in the pergunna Yelpecondah, and to another man of family, Meer Ashuk Hoossain Alli, a village called Woolundee in the same pergunna, yielding Rs. 2,410. Two peerjadas have enam villages—the one, Idutshah Durwesh, has four in the Havellee pergunna, which yields him Rs. 3,618, and another, Hoossain Badshah, has five villages in the united pergunnas of Kotaguttoo and Katachpoor, yielding Rs. 4,812. The kazeehirky has two villages assigned him yielding Rs. 1,505, and a lady, Luteef Begum, a small village called Luteef Begum, in pergunna Yelpecondah. All these sums are according to the koolkamil assessment, and their accuracy is not to be relied on.

Throughout this part of Telingana the village system prevails, but there does not seem to be that staunch adherence to the chief village officer (the Patell) and his family which exists elsewhere, as in Malwa, where a Patell to a village is as necessary as a queen bee to the hive. The simple usurpation by force or fraud of the Patell's rights by the Deshmookhs and Deshpandyas does not thoroughly explain this, for at one period Malwa was the most lawless country in India, where such rights would have been usurped without scruple if they could have been maintained. A concurrent cause must therefore be sought for, which will explain how the ryots acceded to the spoliation of their chief, and it may be found in the necessity that exists in Telingana, on the occurrence of a bad season, of the population abandoning their villages to seek sustenance elsewhere. Owing to this the tie to their Patell would necessarily be relaxed, and the Deshmookh or Deshpandya would be regarded as the village as well as the district head, and would be tacitly permitted to assume the rights of the Patell on performing his duties.

Surdeshmookh and Surdeshpandya.—It has been already mentioned that one family of Surdeshmookhs and one of Surdeshpandyas existed in the Circar of Warungul.

Their supremacy, however, is nominal, as neither the one nor the other exert any control over the class of Deshmookhs or Deshpandyahs, or derive any pecuniary advantage from their position. It may be presumed, however, that such claims once existed, not so much from the present Surdeshmookh's attempting to revive the dormant rights as from the Surdeshmookh of Elgundel deriving a certain pecuniary grant from his position independent of his dues as a simple Deshmookh.

The present Surdeshmookh is of the Coonbee caste, a turbulent unscrupulous man, and likely enough to give trouble to a weak Government. His name is Venkut Narsinha, and he shares with a brother, Yermojee, the rights of Surdeshmookh; he resides at Atmacoor.

The Surdeshpandya, Mullya by name, is a Brahmin, and has the unenviable fame of being the worst zemindar in the Circar. He lives at Mutwarrah, but the other members of the family live elsewhere.

Deshmookh and Deshpandya.—These are named indiscriminately zemindars; the former are usually Coonbees or Yelmas, the latter Brahmins, but the

zemindars of the Hussenabad and Cotacondah pergunnas are Brahmins, and exercise the rights and receive the fees of both Deshmookh and Deshpandiyah. One of their ancestors, being Peshcar to Taunah Shah, the uncle and Dewan of one of the last of the 'Affghan race of Golcondah kings, had this grant accorded to him in consideration of his services ; but in fact the concession is now of little use, as, by mutual agreement, the Deshmookhs and Deshpandiyahs have yielded up their rights to each other, on condition of being allowed to hold each his own villages, independent of the interference of the other either for profit or control, thus obliterating all traces of their original connection. The fees received by them are five per cent. on the revenue with two beegas of land at each village, which may be reckoned five per cent. more ; they have also the care of the Sadar Khurch, an allowance to each village from Government of five per cent. on its revenue, for the repair of tanks, catcherry expenses, alms to beggars, and allowance to dancing-women called Doombarnees. They have, besides, claims on the produce of the dato and palmyra trees, a share in the town and transit duties and local duties ; they are the heads of the police, and being accountable to Government for all murders, robberies, and other violences perpetrated in their several domains must proceed *posse comitatus* to the apprehension of the criminal. They enforce the decision of punchayets, collect the revenue of their district—in short, exercise the functions of justice of the peace, sheriff, and land steward to Government.

The character of these functionaries in this Circar does not stand high, and with some exceptions they are, especially the Brahmins, the objects of much merited odium. To quarrel among themselves, to squeeze as much out of the ryots as they can, and to defraud Government, are the great end and aim of their existence, which they pursue without much shame or remorse. Since the time of Sir Charles Metcalfe they have been restrained by European superintendence till within the last four years, on their emancipation from which that they have at least relapsed into their old habits of lawlessness the following incident will show, while it will illustrate fully to what a crime an ignorant Government like the Nizam's may be unintentionally privy. A feud of some standing existed between the Surdeshmookh Venkat Narsinha and the Deshmookh of Pakhall, Dhurm Rao, a Yelwar. The character of the latter was that of a bold, fearless man, not certainly tormented with a very tender conscience, who had been outlawed, proscribed, and driven to seek refuge at Bustar, in the very heart of Gondwanah, but rather for the crime of his father than for any misdeeds of his own, his acts being retaliatory rather than aggressive. He had, however, returned, made his peace with the Government, had been reinstated in his patrimonial rights, and had for several years effaced, by correct conduct, all suspicions of disloyalty. At the end of the hot season of 1844, not one year after European control had ceased, the Surdeshmookh obtained a warrant from the Hyderabad Government to the Naib at Hunnumcondah (procured, it is said and believed all over the country, by a bribe of Rs. 10,000 to a wretched parasite of the court, of the name of Balmoocond) setting forth that if Dhurm Rao appeared in open rebellion he might be put to death. Armed with this he prevailed on this officer, no very unwilling instrument, to aid him in accomplishing the slaughter he meditated. To avert suspicion a nautch was given at Hunnumcondah, from which the parties chiefly concerned withdrew at an early hour of the night ; they had already laid their plans, and before day had dawned the village of Dhurm Rao, in the vicinity of the Pakhall lake, was surrounded by Government troops under the Naib, and the police of the Surdeshmookh under Venkat Narsinha himself. Their victim, who was sick at the time, and thinking of anything but treason or rebellion, attempted to escape but in vain. He was run through with a spear, and the murder was speedily accomplished. To give as legal a colouring to the atrocity as possible his head was fixed on a spear and paraded through the streets of Hunnumcondah.

Surmoonewar, Boputtee, the Chief of the Corewars, a race of savages inhabiting the jungles about Pakhall. To this office were attached certain rights exactly similar to black-mail over certain districts, estimated at one per cent. on the revenue, but the misconduct of the Boputtee and his people and the

resistance of the Zemindars have caused these to be forfeited in a great measure. He derives, however, some revenue from rents, and in a bad year when the Pakhall lake shrinks he is entitled to crop the dry margins, and it is on such occasions that the Government-officers manage to make him pay up his arrears of tribute, but he has a very decided repugnance to fulfil such claims, and evades them in every way he can. Some of the wretched hamlets of his country send in as their contributions speaking mynas, red squirrels, and jungle produce of all kinds. Although looked on as a bad subject, his rights are probably more ancient and certainly as well guaranteed as many of his brother-Zemindars of the plains. He affects caste, and does not eat beef as other Corewars do.

Besides the claims accorded by Government the Zemindars levy on their own account certain puttées of the nature of aids in the feudal times :—

- 1st. Shadee puttée—on the occasion of a marriage in any of their families.
- 2nd. Boordee puttée—for a death, and one for a birth in the family.
- 3rd. Suffer puttée—for defraying the expenses of a progress through their own domains.

These taxes fall exclusively on the cultivators and artizans; they are not raised by a particular assessment on each individual, but the village is arbitrarily assessed, and the heads of the village, who are exempted from any payment, have the care of raising it. These are seldom paid with good will, and when exacted by an unpopular Zemindar are hateful. A story current among them will illustrate this. A wicked Rajah who ruled over a part of the country and whose capital was at Chandragiry devised a puttée of a new kind. The breasts of the women were to be measured, and the measure was to be filled up with coins. The tax-gatherers came to the house of a dhobee who was absent, and proceeded to execute their orders on his wife, who had remained at home. The woman, indignant at the treatment she met with, dashed out her infant's brains against the washing stone, and then slew herself, after she had cursed the Rajah and imprecated desolation on his house. The city became a wilderness, and the wicked Rajah's family was destroyed, and to this day may be seen the blood and brains of the child on the margin of a tank.

Patell.—In very many villages of this Circar this office has become extinct, yet in the Surdeshmookh's districts they are still to be found; their rights are mostly in the hands of the Zemindars and Dorwa (the Telooogo word for Muqadam) and their functions performed by them.

The nature of the office of Dorwa or Muqadam and his rights will be fully understood by the sunnud in the Appendix.

Putwaree.—This functionary has withstood all vicissitudes, and he, not the Patell, may be regarded as the real keystone of the village community. He is invariably a Brahmin, and must be capable of reading and writing. His grain huq has been noted, his meeras land varies much in extent, but may be taken at two beegas of rice ground and two beegas for dry grain, but he is commonly the richest man in the village, tilling much more land than his original gift, which he, being of the Khooshbash, obtains at a more favourable rate than the mere ryot. In kusbas he gets a portion of the garden produce, called poorjee, also a small fee from each shop when fairs take place. He has a share too of the produce of fruit and palm trees. A very good understanding usually exists between him and the Zemindar, who favours him in all disputes, and if differences between them spring up they are of the nature of lovers' quarrels: indeed the cunning of both leads them to affect animosities to give them facilities for cheating the revenue officer.

It may be here mentioned that the meeras lands of this and of the other district and village functionaries may, through misconduct, or from incapacity of their possessor, be taken from them by Government, which in this case bestows them on a member of the family more loyal or more capable. Meeras lands are seldom sold,—indeed it is questionable if any such sale is legal,—but they may be mortgaged for debt, in case of the proprietor going on a pilgrimage, or where a widow with a young family has the right to them but is incapable of exercising it satisfactorily.

- The other huqdars, among whom the six cousoos of grain are distributed, are

numerous, and the proportion of grain to each is by no means constant. In most cases Government or its agent comes in for a tolerable remainder after the shares of the rightful owners have been adjusted, but the huqdars also get lands on favourable terms, Government exacting less rent from them, whether of money or grain, than from the ryot.

Burhaee (carpenter).—Seems an essential member of the village community, but even his huqs vary: two pylees of grain in the khundy would seem to be the proportion he usually receives. He gets also presents of grain from the Coombees for doing extra work. The Putwarree is sometimes liberal enough to present him with a cow, and the Government with a piece of land or a well, with the right to cultivate around it.

Lohar.—Receives two pylees and has gifts like the carpenter. The other three of the Paunchbaee—the tinman, stonecutter, and goldsmith—have dropped out of the village huqdars, and the last is even reckoned among the rent-payers in kusbas, where only they are found, but he gets a certain percentage for shroffage. The Sungtrass may be looked on as extinct, for the miserable hut-builder can surely not be the descendant of the gigantic race who, in the days of old, were so strong as to be able to squeeze oil from the sesamum by the mere force of their clenched fists.

The Paunchbaee wear the sacred cord, and have particular marriage ceremonies, which are gone through with a privacy unknown to other castes. It is likewise considered unlucky to meet a member of the brotherhood in the morning, as they are the manufacturers of deadly weapons.

Yellawar.—He is often a low-caste man, but not necessarily so—indeed he may be of any caste except a Brahmin. A Yellawar is a Coombe. At Hoosainpurty he is a carpenter. In the smaller villages he is at once boundary marker, guide, and water distributor, for which he receives four pylees of the Balowteh allowance, but in the larger villages his functions are divided between two or three or even more, in which case so much as six pylees, or even more, are allowed, the scout receiving the largest share.

The Dhobee gets one pylee, besides presents, on the birth of a child, from the cultivator. In the kusbas he is reckoned among the rent-payers; he cowdungs the catcherry and sweeps the inside, the Tullarewar or Dher sweeping outside.

The Hujjam gets one pylee and small presents on the occasions of weddings.

The Coomar.—An important member of the village: all castes save Brahmins eat from his hands; besides his occupation of pot-making he makes the lares and penates of the lower castes, and performs poojah, &c., to the Saktis, which are not acknowledged by the Brahmins, for which he receives two annas each time. His allowance is one pylee. In the larger villages he is a rent-payer.

Chumar.—Receives two pylees. The several priests, the Brahmin astrologer, the Jungum, the Byudlewar, the Poojarree of the lowest castes, the Ayawar, the priest of Vishnool, the tom-tom beaters or Tumbree, each receives a pylee, and also the fakeer where there are Mahometans. The Dhers and low-castes, who act as Pyadas, receive a proportion varying according to their number, and the Dhungurs a portion for the dung of their cattle and sheep. The Doombarnees, dancing-women, also come in occasionally for a share.

Brahmins.—They are chiefly Sunkaracharrys, followers of Siva and the Saktis; there is little learning among them; the astrologers are reckoned weather-wise, although their prognostications often fail; they also cast nativities and calculate eclipses with some accuracy; there exist two sects of Vaishnava Brahmins, Ramanuj and Madwacherry, the last are Hunnuman's priests, and are said to live luxuriously. In the Appendix is given an account of some of the enams of the temples, but these, particularly the money payments, are often evaded by the Mahometan Naibs.

The Brahmins employed in secular pursuits are of the two sects Ramanuj and Sunkaracharry; no Brahmin, whether secular or of the priesthood, tastes fish or flesh, but for this they make up by drinking ghee, milk, and using highly azotized spices in their food; they drink toddy but not openly; the majority snuff, but some smoke tobacco; very few Brahmins are actually tillers of the soil.

Yelmees.—The Rajpoots of Telingana, although their pretensions to fill the place of the Kshatryas are sneered at and denied by the Brahmins, are a manly race, fond of the chase, and from veiling their women are reckoned among the Khooshash. Some Deshmookhs are of this caste, the Sumtamunuyum and Pakhall Deshmookhs being both Yelmees. They are cultivators and soldiers, but few enlist into the service of the Company or the Nizam. As to their origin, they were in all probability the fighting class of Telingana before that country became Brahminical, and they need care little for the Brahmins denying them the rank they covet, as the similar claims of the Rajpoots are rejected by the same authority. They are all followers of Vishnoo. There are a few Rajpoots about towns, usually in the military service of Government.

Mussulmans.—Most of these are Government employés, but the carpet weavers of Mutwarrah are all Mahometans, and very bad specimens of the faithful they are, being drunken, turbulent, and lazy; some cultivate the lands of the Peerzada, and a few are farmers on their own account, and dorwas, and some are tradesmen, the butcher being universally a Mahometan. Brahmins, Yelmas, and Mahometans are of the khooshash, and have certain remittances of rent from Government allowed them, as from the circumstance of keeping their women behind the purdah they are denied their aid in their labour; this allowance, or *Moof* as it is called, varies in the grain rent from one and a half maunds to two maunds in the cundy. As before stated, they are not subject to puttees.

Coonbee (Capulloo in Teloo goo).—Of these there are no less than seven different sub-castes, who neither eat together nor intermarry, existing in this Circar alone. But there are said to be in Telingana as many as twelve:—1st Mootat, 2nd Goreewar, 3rd Luckamurry, 4th Pakenat, 5th Cordiewar, 6th Gonewar, and 7th Chetteepoowar; the first four are reckoned the superior classes, from the circumstance of some Deshmookhs belonging to them. The three last are the more temperate, and are said to deny themselves flesh and toddy. The Chetteepoowar are Lingayets.

The Coonbees are very industrious, although social evils have rendered their labour of little avail in elevating themselves to a condition superior to that in which they were born. The sowing and reaping seasons are their busy times, but the hot weather is by no means spent in sloth: they then cut down wood for the repair or renewal of their implements, burn for charcoal, make straw ropes and collect thorns. The women are truly their husbands' helpmates: they prepare his food, weed, plant grain, clean cotton, grind corn, and, in the absence of other employment, ply busily the wheel and spindle. Old age is respected among them and carefully tended, and if we have to blame that inveterate practice of uttering without remorse the most unblushing falsehoods respecting their condition there is much to laud in their industry, patience and good nature. They are not so active or physically strong as the Mahrattas, but in intelligence they are much on a par with them, and in politeness superior to that rude and unmannerly people. The principal item of their extraordinary expenses is their marriage, seldom defrayed for less than a hundred rupees, though it is possible to be got over for half the sum. At births a rupee, or its equivalent in grain, is given to the dhobee, the same to the midwife, and from two to four annas to the Brahmin who casts the nativity. The purification feast costs them a couple of rupees. The Deshmookhs of this caste veil their women.

Beljewars.—Also cultivators, especially about Purcull, where they are to be found in the greatest numbers. But they are also shopkeepers, sell drugs and tobacco, have property in cattle, and practise medicine. They are all Lingayets; Jungums are very frequently from this caste.

Dhungurs.—Of these are twelve sub-castes—1st Yerrah Walleroo, 2nd Pakenat, 3rd Putra, 4th Pooja, 5th Paddameeta, 6th Peya, 7th Gumpa, 8th Carne, 9th Mittee, 10th Moodeta, 11th Mooda. There is yet another; they are distinguished by the difference of the ornaments of their women and by their dress, and, like the different sub-castes of Coonbees, do not eat or intermarry with each other. The Yerrah looks on himself as the best-caste Dhungur. The Dhungurs are reckoned among the rent-payers in the larger villages. Their contribution to Government

varies much according to season and locality. When hired by Zemindars to tend their cattle the Dhungur gets ten rupees a season, a cumblee, some tobacco, a pair of sandals, and the milk of a cow.

The breed of cattle of this part of Telingana is peculiar. They are a small hardy race of a white colour, the tips of the tail being black. The cows calve at the beginning of the rains; if the calf be male it is allowed the whole of its mother's milk, but if female the parent cow is milked to about half a seer, or about the half—a seer a day being the average quantity given by a single cow, although a seer and a half may sometimes be obtained. In the hot season herds of this breed of cattle collect from this and the neighbouring Circars at the Pakhall lake on account of the abundance of grass there. Several of the instincts and dispositions of the wild animal, dormant rather than extinct in the domesticated state, show themselves; they keep together for mutual defence, rush from pasture to pasture in a body, and at night time each herd forms itself into a square, to keep off tigers, which seldom venture to assail the body when so prepared, but are obliged to content themselves with the waif and stray. The proprietors of the several herds, chiefly zemindars, pay a rent of ten rupees a season to the deshmoorkh of Pakhall for each.

At two years of age the males are gelt by breaking down the testicle or destroying the cord by a sharp piece of bamboo run through and through. This cruel operation seldom proves fatal. From twenty to twenty-four rupees is esteemed a fair price for a pair of these bullocks. The cows after giving four or five calves are sold to butchers, who come from Hyderabad or reside in the larger villages, for three or four rupees. One draught bullock of this kind measured in height 4 feet 2 inches, length of back from between the horns to the root of the tail 6 feet; another measured in height 3 feet 9 inches, length of back 5½.

At Muncherla, in the *Havalee* pergunna, Feraputty, and at Yellunda, a village in the jagheer of the killadar of Warungul, there is a breed of bullocks very much resembling the Berar. The Telingana bullocks are used chiefly by the cultivators; the Benjarees buy them occasionally, but prefer the Berar bullocks as stronger.

The goat and sheep present no very striking peculiarity; their price varies from twelve annas to a rupee; two kids are common, but lambs come usually single.

The buffalo is of a very inferior kind, yielding two or three seers of milk a day only, price varying from 5 to 10 rupees; it is sometimes used for draught; the buffalo calves in autumn.

A disease similar to cholera in some of its symptoms attacks stock:—cows attacked with it occasionally recover, but buffaloes never; little or no medicine is used, as the disease is reckoned the direct chastening of the *Saktis*.

The cow-pox also prevails in October; excessive fat too is regarded as a disease.

Stock is also subject to be attacked by worms and by a disease of the liver—the liver fluke? Although rather out of place, it may here be mentioned that the ponies of this Circar are miserable little animals, and the donkeys the usual degenerate race of the Deccan.

There is a head Dhungur who settles with Government, mediates in caste disputes, and carries out the decision of punchayets under the Zemindar.

Telingees, called also Munnoowars from a degrading tradition of their origin; that this low class should give name to the country is paralleled by the same thing occurring in Gondwanah; they are cultivators and labourers; they are protected by the Yelmas.

Coolies.—This caste hangs loose on society; they employ themselves in bringing in jungle produce, fruits, roots for food, and medicine and honey, assist in the manufacture of iron, act as Pyadas; in troubled times they are robbers, and at all times thieves and drunkards. The Telingana bearer, who is also a fisherman, is of this caste. The coolies rent from year to year the tamarind and mango trees from the heads of villages at half their produce, or a money rent.

Dhers are similar to their brethren in other parts of India; they are Pyadas.

Yellawars.—As Oopurwars they cultivate land, and as Beldars dig wells and clear out tanks.

Yerkullwars.—This is a nomad tribe who live in huts made of reeds, or of the leaves of the palmyra tree, and subsist on the flesh of swine, game and carrion, and a little grain they may get in barter for the mats and baskets they construct. They snare birds with bird-lime, and they have a small breed of dogs with which they kill hares. They kill most of the dogs when young but retain the bitches, to which, when they are intended for hunting, they give a certain root that renders them barren; they are slender-bodied animals, of an active make, but with an ugly heavy head. Brahmins will not approach them, but the Jungum is more pliant, and on the occasion of a death, for a present of some grain, he attends and blows his conch. Their marriage ceremonies consist in a head-man whom they elect for the occasion and place on a throne of turf, putting rice on the heads of the young couple and uttering some mystic words; a pig is then killed, the flesh is cooked and eaten, and ample as their experience must be of the qualities of every kind of flesh they are unanimous in declaring that pork is superior to all. They then jump about, beat their bellmetal vessels, and the whole concludes by the whole party, male and female, getting drunk. One of their customs is very peculiar. On the occasion of a birth the husband is looked on as the object of compassion, and is carefully tended by the neighbours, as if he and not the wife had been the sufferer. Like all vagabonds they are regarded with suspicion, and with some reason, as they affect to possess a divining rod in the shape of the frond of the wild date, by which they may discover on the outside of a house where property is placed within. Instructed by this, and perhaps by some more certain information, they have been known to dig under the wall of a hut with their long curved knives, and abstract what they found inside. Although despised as a low carrion-eating caste, the ryots do not hesitate in cases of sickness to consult them. Then the divining rod is produced, a Yerkullwar woman holding one end while the other is given to the person seeking advice, a long string of words is rattled over, the result of the disease foretold, and the particular shrine is indicated where an offering is to be placed, or the offended *Sakti* named, whose wrath is to be appeased by sacrifice, their peripatetic life giving them an extensive local knowledge of temples and holy places. They pretend, too, to a knowledge of medicine, and a composition of the bark of some tree, the name of which they will not reveal, powdered and formed into cakes, is in the pouch of every Yerkullwar as a remedy against snake bites. They speak a corrupt Tamool.

Woodeewars.—They differ little in their customs from the Yerkullwars, and live in the same kind of dwelling, but they wander less, and sometimes acquire some little property in cows and buffaloes. They are employed in carting stones, making mats, digging wells, and clearing out tanks along with Beldars; they receive for clearing out sixty kolas of length and one kola of height and breadth of mud, about 120 cubic yards, two kudees of rice and two rupees, but a portion of the grain is claimed by the Putwaree. Their curse is dreaded by the Coombees, who sometimes earn it by cheating them of their dues. They entertain a deep animosity towards the Dhungurs. The shriek of the jackal when at their evening meals startles and alarms them as a bad omen, and they even cast away their food on hearing it. They speak Teloogoo.

Corewars.—This is a savage tribe inhabiting the sandstone hills about Pakhall and the country towards the Godavery; they are the subjects of the Boputtee, but eat beef and are not acknowledged as Hindoos; they are capable of great fatigue. Save a few balls made up of the flour of the mallwa and tobacco, they go long journeys without any sustenance.

Mahrattas.—Mahratta immigrants are numerous in the western part of the Circar, to which they came some thirty or forty years ago. They have introduced into Telingana white jowaree, black moongh, and the sweet cucumber. Their lands are rented on the Istava cowl, which after a few years becomes a fixed rent. They live in huts of wattle and dab, which they can easily move to another spot, when from caprice of their own, or breach of faith on the part of the Zemindar, they choose to do so. Their Putwaree is a Teloogoo Brahmin, and their artizans are Teloogoo, but their head-man is invariably a Mahratta, and he gets for his

trouble a certain portion of land rent-free. They are considered good agriculturists, and are sober and temperate, but being strangers, without any feelings of local attachment, they frequently, without much cause of offence, shift their quarters. They eat more bread than the Telinghee Coonbees, and the fruit of the palmyra tree is particularly relished by them.

Shopkeepers and other Tradesmen.—These are all regarded as on the Moturfa, and pay a money rent to Government in the large villages, where they usually congregate, with the exception of the Bunnyas and Kullals, who are found in most. The chief of these is the Bunnyah, who, besides being engaged in the retail of goods of every description, lends money to the ryots on the guarantee of the Putwarree. The interest to be paid is $1\frac{1}{2}$ per cent. per month, but they are more frequently paid in kind than in money. Thus the Coonbee, of his crop, reserves exclusively for them sesamum, castor oil seed, gram and moongh; the Dhungurs always repay in kind; and the Kullal, for fifteen gundhas lent, such is the mode of their calculation, pays nineteen at the end of the year—very nearly eighteen per cent. The Telingana Bunnyas are not, it is said, so greedy of gain as the Marwarree, or so merciless in exacting the capital and interest at the appointed time, whatever may have been the mishaps of the debtor; but sufferance with a debtor's delay is not the badge of the tribe, and they unscrupulously seize and sell the whole property of the wretched Coonbee, to his wife's ornaments and his last cooking pot, the poor creature being reduced to misery, and compelled to content himself with rags, earthen pots, and a precarious subsistence as a day labourer, and it is a common saying among the people that of all classes it is most difficult for a Coonbee to regain his position. There are Marwarrees in the Circar on their own account, and agents from parties at Hyderabad. The Bunnyas are of three classes, followers of Vishnu and Siva and Lingayets.

Kullals.—The toddy drawers. The rent of toddy trees is included in their contribution. But a better idea will be given of the several trades and of their payments by a table showing the moturfa payments as they exist in the town of Hunnumconda.

Moturfa or rent payers in the kusba of Hunnumconda.

	No. of Houses.	Rent paid.
Kullals, toddy drawers ..	33	Rs. 900
Bukhalls, shopkeepers ...	33	" 250
Sonars, goldsmiths ...	8	" 65
Butchers ...	1	" 43
Beef-Butchers ...	1	" 22
Tobacco-sellers ...	4	" 22
Tailors ...	6	" 22
Cotton-cleaners ...	1	" 3
Dyers ...	1	" $1\frac{1}{2}$
Dhungurs ...		" 66
Dholees ...	9	" 45
Confectioners ...	5	" 34
Potters ...	8	" 20
Weavers ...	8	" 21
Pawn-sellers ...	1	" 28
Oil men ...	3	" 35
Saddlers ...	3	" 14
Saltpetre manufacturers ...	2	" 12

Most castes and trades, even some of the very lowest, have a set of beggars attached to them, who by importunity, flattery, and sometimes threats, extort alms and food from its members; they go about showing pictures, toys, &c., beating tom-toms, recounting the deeds of their ancestors to each caste, and by every means administering to that most prevalent of Indian weaknesses—vanity. They are to be found at births and marriages; Coolies, Dhers, and Choomars have respectively their mungneewallahs, as they are called. Yet some of these clients are of use or comfort to their patrons: thus the Correwars, mungneewallas of the Dhungurs, assist them in looking after their flocks and make cumbles, and the Byudlewars are priests of the Dhers.

There are, besides, the usual number of religious mendicants, who beg indiscriminately from all castes; strange to say, there are few or no gossaeens—possibly the country is too poor for them. A few of them, it is true, came up to

Warungul on a treasure hunt some years ago, and it is said found wealth, which may be doubted; they sought for it in the old temples, and did not hesitate to pull up the floors in their search. There are some Byraghees who are held in a certain degree of repute for piety and asceticism; they are often to be found in the false caves of the granite rock.

Slaves.—The slavery existing in India, it is well known, is a different thing from the slavery of North America or Brazil: not that the slaves are less bondsmen in the one country than in the other, but the treatment is widely dissimilar. The African is worked like a beast of burthen, the Indian is cared for as a valuable servant. Slaves are employed in various ways: they cultivate the ground, act as a kind of bodyguard to the wealthier zemindars and are then called *khitmutgars*; they are even made *havildars* of villages, and are allowed to possess property. Slaves are commonly purchased during famine times, when all castes and classes save Brahmins are compelled, for the very existence of themselves and their offspring, to resort to this mode of relief; they are never resold, not even when their masters have, through misfortune, been reduced in circumstances, on which occasions their services are lent to the wealthy who feed and clothe them, but offer no other remuneration to their owner; male slaves are allowed to contract marriages, but the females are not permitted to do so. At the Dussera clothing is dealt out to them, the women get a saree and a chowlee, and the men an *angarka*, *dotie*, *doputta*, and a *pugree*, and on occasions of marriages they may get a dress more. The caste of slaves is unaffected by their condition, save in the case of their being sold to Mahometans, when they become of that faith. The price varies much: a rupee or two in seasons of extreme scarcity is sometimes all that is given, but in time of plenty their price rises, for then the market is but scantily supplied.

They are generally treated with kindness; the female slaves address their mistresses as *umma*, and they are themselves called *ayah*. Instances of extreme fidelity on the part of *khitmutgars* to their masters are recorded, but the curse of slavery, all mitigated though it be, clings to the institution. Slaves of zemindars, who are the class usually possessing them, are often spies and informers, the objects of terror to the ryot and tradesman, who dread their approach as a pestilence.

The sects of some of the castes have already been noted; besides those already noted, the oilmen, weavers, some carpenters and goldsmiths are *Lingayets*, and the number of this sect may in some degree be estimated by their having a *gooroo* living near Warungul, who fashions lings from the steatitic granite for the poorer classes, and consecrates for the richer the symbol formed of materials more costly; the ling boxes are made by the goldsmiths. But the religion of the Brahmins, as set forth in the sacred books, deformed though it be by polytheism, does not satisfy that insatiable craving for idol worship which seems so inveterately to exist in the minds of the natives of India. *Hunnuman*, it is true, the representative of the good principle, has his honours undivided; but the evil principle, the ever active agent to afflict and torment, is propitiated under numerous forms. Not to mention the terrible incarnations of *Devi*, there is the feticism of the snake and the *Saktis* *Yellumma*, *Peddumma*, *Poshumma*, *Mysumma*, and *Sowdalumma*.

Yellumma is worshipped by all sects save the Brahmins, the *Coomars* are her priests; *Poshumma* is the goddess of the small-pox; *Mysumma* of tanks, to whom a buffalo calf is sacrificed; and *Sowdalumma* is the *Sakti* of the *Coorwars*, and is represented by a black stone. The *Dhungurs* have a god of their own, *Molumma*, who is said to be the *Kundoba* of the *Mahrattas*. Before him, when the season has been favourable, they are swung with a hook fixed in their backs, at a village called *Ainool*. They also worship a deity called *Poolraj*; he is not represented by an idol, but an altar of white stones is raised to him, flowers placed on it, and *pooja* performed by his worshippers with their backs turned to the altar. In the houses too of the poorer classes are two lares, *Balumma* and *Danumma*. The first is invoked to protect their children, the second to increase their wealth; images of both their godships may be purchased at any potters for a few pice.

The belief in witchcraft pervades all ranks, and in times of pestilence its professors are oftentimes rudely handled and sometimes put to death. In the hot

season of 1845 there was a severe visitation of cholera, and five reputed wizards were put to death; at Oorus, under the eye of the Peerzada, a weaver was hanged, at Purkall a dhobee, and at Cumlapoor a low caste man, a kullal; there were two others. They are tried, judged and condemned by lynch-law, and though the authorities did not approve of the murders they did not exert themselves to punish the perpetrators of them.

The food of the higher classes is not peculiar. The Coonbees and Yelmas who can afford it eat flesh, and fish is a common article of diet

Food.

among the lower castes, such as bearers, &c., but a vast proportion of the ryots and low castes rarely taste animal food, and that solely on the occasions of festivals and weddings; ghee with them is a luxury, and curds most desirable food. Bread is made from jowaree, and latterly from Indian corn, which is now coming into use as a bread corn. Rice is occasionally used, and the produce of the millets, which are eaten as rice and not made into bread, is mostly consumed in the country. The jowaree or Indian corn is bruised, the finer meal is separated from the coarser, which is cooked into a kind of pottage called duleya and seasoned with tamarind,—a very common condiment in Telingana,—red pepper and salt. The finer meal is boiled into a kind of gruel called umbelly, which is much used in the hot weather, when bread is sparingly eaten on account of the thirst it is apt to engender. The cucumbers too are allowed to grow till their seeds ripen, the soft parts are dried and the seeds bruised and made into a kind of chutney, which is eaten with the other part after it has been boiled with some condiment.

The poorer classes are sometimes in great straits for want of food, especially before the jowaree has ripened. With the exception of Bunnyas, the toddy drawers themselves, three castes of Coonbees, and some of the Lingayets, as the Belgewars, all classes in Telingana drink toddy, very frequently to intoxication; nor can this be wondered at in a country where a man can get drunk for a pice and a half; the women also drink.

Of the languages spoken in the Circar the most prevalent is the Telooogo, but it is said to be a corrupt dialect, not to be compared in

Languages.

purity with the language of the coast. All Putwarrees' and Bunnyas' accounts are kept in it, and it is the general language of communication. Hindoostani is spoken by the Government employes, by the Yellawars, and often, not always, by the Putwarrees. Persian is used in written communications by the higher functionaries. Mahratta is spoken by the Mahrattas, and Canarese by the Mudwacherry Brahmins and the Correwars, the clients of the Dhungurs. A very corrupt Tamool is spoken by the Yerkulwars.

The granitic country is salubrious, but the sandstone has a very indifferent

Health and Diseases.

reputation. Fevers, spleen, &c., are there very common. The corps and squadron of cavalry stationed in the neighbourhood of Warungul has enjoyed excellent health since being cantoned there. Cholera is said to visit the country epidemically every four or five years. The last time it raged with great severity was in 1845, when it numbered a large proportion of Mahometans among its victims, a fact observed in other and distant parts of the country. A patient attacked with cholera trusts little to the power of remedies, the chastising Sakti is sought to be propitiated, and gifts are promised on condition of his being spared. Abstinence is greatly relied on in fevers, frequently no other means are taken to cure it. The Hakeems destroy the effects of many valuable drugs within their reach by subjecting them to the action of heat, fancying that the *caput mortuum* of charcoal that remains after combustion contains all the properties of the remedies they put into the pot.

In most large villages there is a schoolmaster, wholly dependent on fees and gifts, who professes to teach reading, writing and arithmetic.

Education.

All castes without distinction are admitted to the school, from the Brahmin to the Zeengar (saddler). Religion is not inculcated, that task being left to the priests of the different sects. The schoolmaster is usually a Brahmin. He may derive a couple of annas a month from each pupil, with a gift of grain as can be afforded. The pupil is first taught to write in sand, and

then he furnishes himself with a blackboard and a pencil of steatite. The punishment for the remiss and negligent are flogging and a species of picketting. Their tasks in reading consist of exercises in some parts of the adventures of Rama and Krishna, subjects on which all Hindoos can meet with unanimity, nor are Mahometans so shocked with these legends as to prevent their children from being instructed.

The inefficiency and the maladministration of justice renders it very difficult to estimate precisely the state of litigation and crime. The resort to the Panchayet is the usual mode of terminating disputes of a civil nature, but even this, in itself a very excellent mode of settling disagreements if left to work independently of all influence, is rendered unsatisfactory by the superior authorities often claiming the right to name the Surpunch. There is a Cazeer who has a village in enam near Warungul, but from his ignorance and want of education, being unable to read or write, he is incapable of performing the duties of his office; there has been in consequence a paid functionary appointed; his salary is 70 or 80 rupees.

There are two divisions of police—the village police, who, under the name of muskoree, receive in large villages a rupee a month and some grain: they are offsets from the Dhers; and the Government police, who assist in collecting revenue, &c., for which they get three rupees a month. There are a few Arabs in the Circar, who receive large pay, varying from Rs. 12 to Rs. 15 a month.

There are no streams of any importance in the Circar. On the north they feed the Godavery or its confluent: on the south the Moosy and Kishna; they are all without names, and, saving the rivulet issuing from the Pakhall tank, are dry nulla beds a few weeks after the rains have subsided. But though of insignificant body these streams are abundant and supply the numerous tanks which are the great and characteristic feature of this portion of Telingana.

The Pakhall lake has been frequently mentioned; it is sometimes called a tank, but from examining the bund I conceive that its bed must have contained water previous to the erection of any artificial embankment. There is a myth regarding it, that the hills about it which contain the water were raised by magic by Brahmin agency to please one of the Warungul kings. There is a chubootra about the middle of the bund, called the chubootra of Sitabkhan, lieutenant of one of the first of the Golcondah princes who finally expelled the Hindoo dynasty. It is a magnificent sheet of water from thirty to forty miles in circumference. Its shores are well wooded and stored with wild animals, but for six or seven months of the year its neighbourhood is very unhealthy. In its immediate vicinity not much more than fifteen hundred beegas, owing probably to this circumstance, are under cultivation, but it sends off several streams which are turned to account at a greater distance, and it yields a tributary to the Kishna river.

Besides the Pakhall tank or lake—the most conspicuous sheet of water between the Kishna and Godavery—there are large tanks at Hunnumcondah, the kusba of the Kotaconda Hussanabad pergunna, at Durmasagram, Nagarum, Woodapilly in the vicinity of Hunnumconda, at Gunpore, Chelnaee, and Ramapah in the Suntamonium pergunna, in the havalee at Atmacore, at Yelgoor, in the pergunnas Vizianuggur Wordanapet, at Ryapurty, Wordanapet and Mytapilly. There are large tanks also at Purcull, at Poosapilly in the Hussanabad pergunnas and at Camlapore, a jagheer village. All these tanks, besides many others in the Circar, are furnished with strong bunds of the most solid masonry. The smaller tanks have bunds of earth and stone intermixed or simply of earth.

The tanks are very old, far beyond the memory of man, most of them dating from Hindoo times. Some circumstances relating to them have already been mentioned. The embankments are of great strength, and if ordinary care be taken of them are sufficient to contain whatever water may be poured into them; but the Zemindars often allow them to fall into disrepair through shortsighted folly.

There are frequently large natural basins on the summits of the granite rock ; these are seldom turned to account for agricultural purposes, but are regarded as sacred pools to bathe in, by which are cured severe and obstinate diseases.

It was the remark of a great statesman that tanks were the national banks of the Carnatic ; and previous to the discovery of America with its maize they were doubtless the great prop of Indian existence in furnishing rice, a grain wholesome in itself, but not to be compared as a food grain with maize or wheat. Tanks, therefore, in a certain degree, may be looked on as a great national lottery, for in ordinary seasons, once every three years, they are but half filled, and once every twelve years they are completely filled ; but, being regarded as the great source of revenue, every foot of land which is irrigated by their waters is cultivated, while thousands and thousands of acres of the finest black soil are allowed to remain uncropped by grains far better fitted to support life than rice.

There are four kinds of wells—the stone well, the pot well, the basket well, and the mere hole dug in the ground for the purposes of irrigation.

Wells.

There are but few stone wells now constructed, and those that remain are, in a majority of instances, ruinous or in a state approaching to it.

The pot well, worrah by name, is built up with cylinders of pottery, each one of the depth of half a foot, which are sold from eight to twelve annas apiece. These wells may last for thirty years, but much depends on the care that is taken of them, and the goodness of the material with which they are originally constructed. Drinking water is most commonly furnished by these wells. Basket wells are constructed by digging in the bed of a nulla and placing in the cavity a cylinder of wicker work to prevent the sand from choking the well : they are common in the southern pergunnas.

Wells in the molhram are dug at the following rates :—for the first cubic kola 6 annas, for the 2nd 8 annas, for the 3rd 12 annas, for the 4th 1 rupee 4 annas, for the 5th 2 rupees, and so on ; but water is in many places found at the depth of thirty feet. When granite is to be blasted rupees 4 a square kola is charged.

The moat consists of an iron dhole which may contain four or five pukka maunds of water, but it seldom delivers more than two-thirds of its contents ; the iron of the moat costs rupees 7, the leather 8 annas, and the wood work rupees 2½—in all ten rupees ; but the Coonbees may have the wood work much cheaper if they supply the material and employ the village carpenter. To work a good moat six bullocks are required, for the labour is very severe ; two men are employed in working it. The assistant is the Choomar, if he can be procured, and a very necessary one he is, as the tackle is always needing repairs. The moat may be drawn thrice in a couple of minutes, but this is too much for an average, as the stoppages and delays in its working are so frequent. For raising water the garim and yatam are used, and for transferring it from field to field the goora.

The Telingana village presents a much more cheerful appearance than the Mahratta gaom. Instead of the dingy wall encompassing the flat-roofed houses of mud huts huddled closely together, we have a detached fort, and the cottages whitewashed and tricked out with red ochre surrounding it or in its vicinity. The condition of the houses and the form of the fort can be much better judged of from the drawings than from any description. There are seldom money payments for hut-building, the ryots mutually assisting each other in their construction. The houses are, with very few exceptions, kutchas throughout the Circar. When money is paid, 8 annas is charged for the square kola.

The vast proportion of houses are built of mud, and so adherent is it that bricks are seldom employed for building, inasmuch as what is called a pukka house is rarely met with, and where it is is generally the property and domicile of the Zemindar of the district, and consists of two stories. In the more wealthy and populous kusbas a proportion of the houses are tiled ; few are flat-roofed, thatched houses predominating greatly. Where the sandstone exists the soil is less adapted to house-building, in consequence of which timber, which is plentiful, is preferred for the construction of the better class of habitations, and bamboo for the meaner huts.

With the exception of gardens, which are surrounded with a milk-bush hedge (*Euphorbia Tirucalli*) the fields are not enclosed. The rudeness of the agriculture has been already pointed out. The commons are rented by Dhungurs,^o who are ranked among the moturfa.

Havalee and Purkull Pergunnas.—The most extensive joint pergunna in the Circar. The villages are chiefly rented by the Surdeshmookh Venkut Nursinha, and his brother Gurmajee, and by the Surdespandya Mulleya. The chief towns are Muttawadda, Ramanapett, Girmajeept, and Hoosumpurty, all open villages. In the pergunna tables I have affixed an asterisk to the villages which have more than 1,000 inhabitants. Purkull, the kusba of the pergunna of the same name, is a straggling village with a ruined mud gurree in its *enceinte*, after the fashion of Telingana.

Warungul, the ancient capital of Telingana, situated north latitude $17^{\circ} 57\frac{1}{2}'$ and east longitude $79^{\circ} 39\frac{1}{2}'$, possesses an interest separate from its present condition of a ruinous village. With the exception of four gateways, which led to the great temple of Siva, and which still remain in a tolerable state of preservation, there is nothing but ruins to denote its former grandeur. Sculptured as these remains are, out of a hard greenstone admitting of a fine polish, the figures cut in the stone retain their outline unimpaired as if they had just come from the chisel. It is impossible to trace the exact form or dimensions of the original temple, so utter has been the desolation, not from time but the violence of the Mahometan conquerors, who, not content with razing the whole structure to the ground, have carried their work of destruction a step further, by using the beautifully sculptured fragments of cornices and capitals as materials for building the inner stone wall of the fort, which is thus clearly the work of the Mussalman. But the persevering piety of the Hindoos has rescued some relics of their great temple; and one whole pillar, attesting what their temple was, is yet preserved, although not on its original site.

The history of the Andra kings of Telingana is about as well known as that of any other Hindoo dynasty previous to the Mahometan invasion; and the inscriptions in an old Teloogoo character found at Warungul have, most of them, been copied and commented on by the learned in Indian antiquities. They chiefly relate to the power, wealth, and extent of dominion of the Andra kings, with the usual bombast and inflation of such productions. Tradition has, as usual, been busy in falsifying what was true, and forging what is impossible. The glories of Pertab Rudrah, the splendour of his temple, the hidden treasures that lie concealed, are to this day, among the Hindoo population, constant themes of admiration, regret, and curiosity. But in viewing the ruins some consolation may be derived by the Hindoo in seeing the mosque and palace built by the leader of the Mussalmans, Sitabkhan, mingling their ruins with those of his own fallen fanes and palaces.

The inner wall of the fort is about three-quarters of a mile in diameter, with bastions and four gates. Five hundred yards external to it there is a mud wall seventy feet in height, with a ditch, and external to that another mud wall of the circumference of twenty-four miles. The labour of constructing such enormous mounds must have been great, and we are justified in believing that the population of the Indian Gibeonites, such as the Woodeawars, must have been greater in those days than it is now. Was the government of the Andra kings a paternal rule like that of the Incas, or was it the unmitigated tyranny of the Pharaohs? The scanty remains of the outcaste population, and the huge works tradition assigns to their labour, incline us to the last conjecture.

Pergunnas Oopal—Chendagherry.—These two pergunnas are usually classed together. In the first there is no considerable village, the most populous not containing more than eight hundred inhabitants. In the second there is but one town that rises above a thousand inhabitants—Wungapilly. In both these pergunnas money rents are included in the sevace jumma, the grain rents under the head of land revenue.

Kotagutta Katajpoor—as the pergunna is called—Katajpoor being at one time

^o In the village returns they are so ranked.

a place of some importance. It is now a wretched village consisting of mud huts thatched. The chief towns are Hutnakore or Atmacore,—the residence of the Surdeshmookh, who has his house there surrounded with a substantial brick wall,—Dogundee and Kalapurthee.

Pakhall Hussanabad, Kotacondah Hussanabad.—Hussanabad is a pergunna the villages of which are scattered over the whole Circar, but chiefly are associated with those of the Kotacondah and Pakhall pergunnas. Hunnumconda, the residence of the Naib Talookdar, adjoining to which is the British cantonment, is a large village with many tiled houses. It is situated under a black granite hill, and from the remains in its neighbourhood must formerly have been a place of some consequence. These remains consist of an ancient Hindoo fortification, a temple dedicated to Siva, and Jain figures cut out of the granite hill in *alto-relievo*. Its town duties and taxes are shared by six zemindars. The Koorwah talooka is attached to Pakhall—a wild tract inhabited by Koorwars, an indigenous race who speak Teloo goo but are not Hindoos. The nature of their country may be conceived from a saying of the natives that a red squirrel can reach Budrachellum, on the Godavery, by leaping from tree to tree. Their villages are the merest hamlets, with a small patch of cultivation adjoining them, having to till them some Telinghee cultivators from the plains. The talooka is assessed at Rs. 9,000, but it is with difficulty that a regular payment of that sum is procurable; and, strange to say, it is only in seasons where the monsoon has been scanty that it can be fully realized, or its arrears paid up. This happens from the shrinking of the waters of the Pakhall lake affording the cultivators an opportunity of rearing a coarse description of rice.

Pergunna Sunithamonyam—Chillavoy. The latter is sometimes dignified with the name of pergunna. The greater part of this pergunna is covered with wood, and the villages are the worst-conditioned of any in the Circar. Rayconda, the kusba, is a wretched place, composed of a few huts. At Chelpore the tusser insect is bred, but to no great extent; it is the most considerable village in the pergunna, but its inhabitants do not reach a thousand. Gopal Rao, a Yelmah, is the chief Deshmookh, but his villages are now in amancee.

Vyzianuggur and Velpeconda.—This joint pergunna has few large villages, but it is in good condition. Vyzianuggur is deserted, and naught remains of it save a mosque in ruins. Vurdanapett is a tolerable-sized village. Coney Reddy, a Coonbee, is the chief zemindar; last year he abandoned his district from discontent, leaving the Government agent to collect and settle the revenues.

Pergunna Baliconda.—The hill fort and kusba of Baliconda are now deserted, Ingoorthy being now the principal village. The pergunna is in good order. The principal zemindar is a Coonbee Deshmookh of the name of Nynwara. He has also had his differences lately with the Government.

Yelgore and Goothepurthee pergunnas.—These two small pergunnas demand little notice. Yelgore was formerly a place of some consideration, as its ruined fort testifies.

These with the exception of Warungul, already mentioned as belonging to the Jagheer Villages,* Havalee pergunna, and Zufferghur in the Velpeconda pergunna, are chiefly situated in the Kotaconda Hussanabad pergunna. A good many villages formerly belonging to jagheerdars are now khalsa. Suraj-ool-Moolk, the present Minister, holds the greater number in the Kotaconda Hussanabad pergunna. The killadars of Warungul and Zufferghur remain unchanged. Zufferghur is a well-built fort, having been erected seventy or eighty years ago, by a very powerful noble, Zuffer-ood-Dowlah, to overawe the refractory zemindars. It has a stone wall, a ditch, and bastions surmounted by pieces of cannon, some of them of great size. It has a garrison, nominally of three hundred men, but their place is supplied by about fifty ill-armed and coarsely-dressed *pyadals*.

The population returns, allowing fifty inhabitants for each Corwa village, and an addition of two thousand for the Woodewars, Yerkulwars, &c., give 41 inhabitants to the square mile, a low average

which is accounted for by the vast wastes of the Pakhall and Sumthamonyam pergunnas, which occupy nearly half the area of the Circar. Rejecting the Corwa villages, there are in the Circar 501 inhabited villages, with an average of 257 inhabitants to each village, and 4.71 for each house.

There are 5,030 Mussalmans in the Circar, giving an average of about four per cent. to the Hindoo population. The cotton cleaners and carpet weavers are Mahometans.

There are no registers kept of births or deaths in this Circar. It is thus impossible to furnish any statistics of the rate of increase of population or of mortality.

I need not here repeat other particulars that may be found in the general summary, which gives, I believe, a true picture of the present condition of the Circar.

It was my intention to have endeavoured to have given a rough estimate of the land presently assessed in beegas or acres, using for data the quantity of seed sown, and the amount of money rent collected, but the conflicting statements I received of the proportion of seed required for sowing a given space, and the constantly varying rent according to the quality of the ground, have induced me to abandon the attempt, which I do with little regret, seeing how profitless and without value, in the absence of an accurate revenue survey, any such estimate would be.

The gross revenue may be thus summed up :

	Rs.	a.	p.
Revenue derived from land, shop and house rent, kullalee, &c. ...	2,70,958	8	2
Sahyer	14,251	0	0
Zemindars, &c., allowances, 15 per cent. deductions from the			
Government collections	40,643	11	2
Total Rupees.....	3 25,853	3	4

A discrepancy will be observed between this statement of the revenue and the one I previously gave in my report of last year ; but in calculating them I had only data partly conjectural, and partly what the Circar yielded when under European superintendence to go on. Two bad years, 1845 and 1846, with a change of Talookdars, have contributed to lower the revenue.

Manufactures.

The chief of the manufactures, and the only one for which Warungul is famed, is that of Persian carpets, which are made of all sizes, and of worsted cotton or even of silk.

The weavers are all Mahometans and are congregated principally at Mutwarra ; although there are a few looms within the Warungul fort. The method of weaving these carpets has been often described, and will at once be seen by a reference to the plate.

The weavers are a set of drunken, turbulent, ignorant Mussalmans, possessing no capital, but dissipating in excess the little money they may procure on accomplishing a piece of work. Carpets, chiefly of a small size about two yards long and a little more than a yard in breadth, are made for the Hyderabad market, money being advanced to the weavers by the dealers there. A worsted carpet of this size and shape costs at Warungul from rupees 2½ to rupees 2½. A cotton carpet is twice the expense of a worsted. A silk one is very highly priced—a common trick among the weavers is to substitute sunn for worsted.

There is a coarse cotton cloth manufactured, called cadee, and pieces of nine and twelve yards in length and a yard in breadth, of the price of two or three annas a yard, according to its texture, also cotton saree of the length of ten yards, and a yard and a half in width, from 2 to 3 rupees. When coloured they are valued at Rs. 4 and Rs. 5, according to the colour with which they are dyed, the madder and chervil being deemed the fastest and most expensive dyes. When the border is ornamented with embroidery, or woven with silk, the piece is seven rupees. Silk cloth, of the width of the curtailed guz, is manufactured and sold for 12 annas a yard, but the quality is very inferior. It is dyed red with lac, green with indigo and turmeric, or yellow with turmeric alone. The tusser cloth manufactured is one-half the value of the silk. Chowlees (women's breast cloths) are manufactured but not

in sufficient quantity to supply the district as they are imported. Cotton pugrees dyed with koosum, indigo, or the bark of the mango tree, which communicates to the cloth a dingy yellow, are made and sold for 2 and $2\frac{1}{4}$ rupees, and are 15 yards in length. An undyed cotton pugree of the same size may be had for 1 to $1\frac{1}{2}$ rupee. Dhotees too are manufactured for 2 to $2\frac{1}{2}$ rupees, and chintz rosaees for 2 rupees. Sarees for young females are stamped and sold for 12 annas. Tutputtee, of different qualities and strength, from 12 to 6 annas per piece of seven yards, is likewise manufactured, and from it, when old and unserviceable, a coarse paper is made, a bounty on the preparation of which is granted by the manufacturer being ranked among the Khooshbash.

The other manufactures in the Circar are tusser cloths at Hoosainpurty, and Chilpore silks at Mutwarrah : cotton cloths of all descriptions at Mutwarrah, Hunnumconda, Girmajeept, Chintaguttoo, Goodoor, Ramnapett, Siampett, and Oopul. At Umballa cotton shutrungees are manufactured and also at Mutwarrah : from 10 to 12 annas is paid. With the exception of the Warungul carpets almost all these manufactures are exclusively for home consumption, and this very fact will explain how they are mostly of an inferior description. The tusser cloth—although the cocoons are the produce of the same insect as those of Bengal—bears no comparison in fineness or durability with the tusser cloth manufactured there. The silks are dearer, and the cottons of the same price as those produced nearer Hyderabad.

There is no large village and but few middle-sized throughout the Circar that has not some looms for the manufacture of the coarser cloths.

Particulars of the expenses of a piece of cadce (coarse cloth) 18 cubits long and 2 cubits in width, sale price from 14 annas to 1 rupee 2 annas :—

	R.	A.	P.
90 pice weight of cotton ($2\frac{1}{4}$ lb.)	0	0	10 $\frac{1}{2}$
Cleaning the cotton (Sathab's wages)	0	0	1
Spinning the thread	0	0	7 $\frac{1}{2}$
Weaver's wages	0	2	4
	0	3	11 $\frac{1}{2}$

Of such cloth the weaver can manage to weave five cubits a day, so that his wages are a little more than seven pice a day.

A small quantity of saltpetre is made at Hunnuconda, and the gunpowder required by the Government is made by the saltpetre manufacturers, the charcoal and sulphur being supplied to them.

Indigo of a very coarse description is manufactured at Hunnumconda: a specimen forwarded to Calcutta some years ago was pronounced by competent authority to be very inferior. Buchanan's account of the manufacture in Mysore tallies with that of the process here, except that the leaves of the *Barleria prionitis* and the *Wrightia antidysenterica* are occasionally added to those of the *Indigofera carulea*. The manufacturers are Derzees and other low-castes. Sesamum and other oils are expressed by the Tillees, but castor oil is obtained by pounding the seeds and boiling. A coarse kind of wrapping paper is prepared at Mutwarrah, and coarse soap and leather for home use are manufactured. There are a few calico printers at Mutwarrah, who print sarees and handkerchiefs: their dyes are confined to the dingy red of the Indian madder and the black of the myrabolan; green and black bangles are also made in the Vizianuggur pergunna.

The dyes chiefly used in dyeing tusser and cotton are cherwil and cherrongee roots of the *Oldenlandia umbellata* and the *Morinda tinctoria*, ground. The dyeing is a very tedious process, occupying from 40 to 50 days; the result is a durable though a dingy red, but the cherwil gives a brighter colour than the cherrongee. In dyeing, linseed oil is commonly employed, but the oil from the seeds of the cucumber is preferred.

Iron is manufactured from the oxydulous iron ore already spoken of; the process is the same as that which obtains in other parts of India and has been often described. It is made at Koomarapilly, Erapilly, and Mulkanoor, where the ore is found, and in other parts of the Circar at some distance from the iron mine. Two

pieces of iron are prepared by each furnace every twenty-four hours, of one and a half maunds each, from ten maunds of the ore. A rupee is charged by the miner for five kundies of the ore, the privilege of mining being purchased at Rs. 12 a year to Government and Rs. 4 to the Zemindar.

Bell metal is cast into vessels at Mutwarra for home use.

In my next report I shall mention any circumstances that appear to me worthy of noting respecting this branch of the subject, but it must be confessed that it is an uninviting one. The manufacturers of India are doomed, and in a short period of time we may see Manchester sarees, as we now see British longcloth, in every bazar. The imports and exports are given in the Appendix. Transit and communication are kept up chiefly by bullocks and carts, the first estimated to carry a pullah, the second from two and a half to three pullahs. The Circar having no running streams there is little interruption to communication throughout the year. There is not a made road or a bridge throughout the Circar.

There is no regular post. The Government despatches are forwarded by peons every third or fourth day. There is a singular want of choultries in the Circar, and the only place of resort approaching to an inn is the shop of the Kullal, who distributes highly spiced food to Mahometans and the low-castes who can afford it. In expresses the usual method of employing the village Dher is had recourse to.

The mode of assessment in this part of the Hyderabad territory consists in the Government letting to the principal zemindars a certain number of villages for a limited period, to be renewed if the parties perform their contract satisfactorily, which is termed the surbastu cowl or tenure. The sum to be paid annually is fixed without any reference to favourable or unfavourable seasons, remission of revenue under native Government not being practised.

Taxation.

In case of the Zemindar failing in his contract the villages become amanee, and the Putwarees settle direct with the Talookdar or his assistants.

It is understood that the Government officers on all occasions mediate between the Zemindar and ryot, protecting the latter from extortion and oppression, and seeing that the former meets with his dues.

The vices of this system are less inherent in its nature than in its general working. A good Talookdar who faithfully performs his duty, and sees justice executed between the farmers-general and his tenants, may make his districts flourishing, and render the people prosperous and happy; but under a needy, indolent, and unprincipled Talookdar the defects of the system stand glaringly out; nor is it necessary to show how his wilful negligence and remissness press more heavily on the helpless ryot than on the more powerful and wealthy Zemindar, who has always means at hand to coerce and silence the cultivators, and not unfrequently the power and disposition to set the Government authority at defiance. Under such circumstances the sole mode of redress left to the ryot is to abandon his village and leave his fields unreaped, a proceeding by which he punishes nearly as much as he avenges himself, and which he will not have recourse to save under grievous oppression and exaction.

When the Zemindar deems himself aggrieved, he either quits his district and leaves the Government to settle with the Putwarees, who are usually in his interest, and whose study it is to perplex the Talookdars with forged documents or false returns, or he takes to his gurrees and openly resists; but at other times, when he sees that he cannot help himself, he makes a virtue of necessity, quietly suffers his villages to become "amanee" till his debts and arrears are paid off, subsisting in the mean time on the allowances to which his hereditary office of Deshmook or Deshpandya entitles him.

The Putwarees are the real heads of the villages; even when the Patells exist, they are set aside by the Zemindar, and receive their allowance rather as a matter of favour than right. The revenue is classed under the heads of 1st, land; 2nd, moturfa, shop and house tax; 3rd, kullalee, spirit, and toddy; and 4th, sevae or sevoy. This last tax in its original signification should yield a very small sum,

being made up of petty village taxes, fines, &c. Yet in some pergunnas it is found to yield as much as the land tax! This arises from all lands let for a money rent being included in the sevoy jumma; it is difficult to account for the origin of this perversion. Where there is much dry grain cultivation the sevoy thus predominates.

An assessment called the koolkamil exists, but no one can tell anything approaching to truth respecting its date, its author, or how it was drawn up. Regarding the two first there is in fact no account whatever, and as to the third some say the whole Circar was surveyed and assessed by the beega, others that a rough estimate was taken of the surface, and the whole rock, jungle and cultivated land assessed at a low and equal rate.

It is in all probability a rackrent drawn up by some of the first Mahometan Ministers, to please his fancy or that of his prince, and it is doubtful if ever it was put in practice—at all events it is quite inapplicable now. The collection of the moturfa or house and shop tax is mixed up with the land revenue; but there is a separate establishment for the land customs and transit duties under the Sahyer Naib.

The officers employed in the collection are a Circar Naib under the Talookdar Sumboo Persaud, who has under him eight inferior Naibs, who, assisted by a Peshcar, superintend the collection of one or two pergunnas each, and render their reports and collections to the Circar Naib, who resides at Hunnumconda.

The grain rents are stored in granaries in the forts of villages, and sales are effected, according to circumstances, to Bunnyas of the country or to the same class residents of Hyderabad or agents sent from thence. The exchange on Hyderabad is usually one per cent. against the Circar, although the halee sicca be more valuable than any of the rupees current there, the sowcars giving as a reason that they have the expense of transporting the halee sicca rupee to Hyderabad, which is very seldom the case. The hoondes are commonly at nine days' sight.

The present Minister proposes giving the Talookdars or Zilladars a fixed salary, but the practice that has hitherto prevailed throughout the Nizam's country has been to give an allowance of two annas on the rupee to the Talookdar on whatever collections he may make, but from this sum he is expected to support the whole of the civil expenses, including peons. The inferior officers employed in the collection are Sheristadars, usually Brahmins, who are accountants and attached to the lesser Naibs, and Havildars, who collect the revenue of one or more villages. The salary of the Circar Naib is Rs. 200 a month; of the Deputy Naib Rs. 40 to Rs. 50, of the Peshcar Rs. 20 to Rs. 25, and of the Havildars and Sheristadars Rs. 10 to Rs. 12.

There is also a Head Peshcar or Surduftur with a salary of Rs. 60 per month, and a Sursheristadar with Rs. 50, who receives his accounts from the lesser Sheristadar, as the Surduftur, who resides at Hunnumconda attached to the Circar Naib, receives the accounts from the inferior Peshcars.

The Havildars are paid in the amanee villages,—that is, the villages under the immediate superintendence of Government by the Talookdar,—but in villages where there is a middle man they often receive the share of the extinct Patell, whose place they occupy. The Sheristedar is paid by a small contribution from each village.

The Circar Naib is a Mussulman, the Deputy Naibs Mussulmans and Hindoos; mostly all the other inferior functionaries engaged in collecting the revenue are Hindoos. Such are the officers and the mode of collection of the revenue—a vamping up of the old Hindoo system, the functions of the Talookdar, Naib, Deputy Naib and Havildar being those formerly exercised by the Surdeshmook, Deshmookh, and Patell, the Surduftur, Peshcar, &c., answering to the Surdeshpandya and Deshpandya, yet in name and in possession of certain rights the old Hindoo officers remain. The whole is a ruin with the parts standing ill-patched, having for a parallel what we see in the desolate city of Warungul—gates that give entrance to no temple, and pillars that support no roof—meet representatives of Hindoo zemindars who exist for self-aggrandizement alone; while the mosque formed from the desecrated and ruined temple, with here and there a pillar of a different stone and of far inferior execution to what it is designed to imitate, and Hindoo shrines built up hastily

and without taste or order are no unfit emblems of the modern functionaries as they now exist.

The land customs and transit duties are under the Sahyer Naib, who receives 40 rupees a month, with inferior collectors at each *masool* chokee.

The number of these in the Circar is no less than forty-four, and the sum carried to Government on account of land and transit duties only Rs. 14,251. The accounts of the sahyer are very complicated, and it is with some difficulty that they have been reduced to the form in the Appendix. A revision of the land and transit duties is now in progress, and some of them have been abolished or modified. Nothing can be more vexatious than the manner in which they have been exacted.

For the carriage of salt to Hyderabad certain parties receive permits at different rates. Some of the more deserving and respectable, if such terms be applicable, of the Brinjaries are permitted to pass their goods at a more favourable rate than others, on condition that they take certain roads to avoid collision with others of a different caste, for bloody quarrels have often been the result of such meetings.

There are no fairs of any great importance in the Circar, but still considerable gatherings, when the season has been favourable, take place :—

Fairs.

1st. Ainool, in the Vizianuggur pergunna, where the Dhungurs swing with a hook fixed in their backs before their god Molunna—the Kundoba of the Mahrattas—and for the privilege of torturing themselves they pay a fine to Government according to their means.

This fair lasts five or six days and is held in January. Cloths, cocoanuts, sugar, metals, silk and tusser are brought to this fair.

2nd. At Chelwae there is a fair in the cold season where there is a famous sakti of the Coorwars.

Sowdalumma.—This fair is chiefly for jungle produce. There is a black stone to which the richer votaries of the goddess tie a young bull, which becomes the property of the Zemindar.

At Ramapatalao there is a fair for jungle produce in the beginning of the hot weather ; at Cataconda for cloths, &c., about Christmas ; and at Chundragiri in the hot season, which, being a holy place, no Kullals nor butchers are permitted to attend. There is also a fair for tusser cloths, &c., at Yerraguttoo, near Hoosainpurty, at the Hooley, and at Meereconda in the hot weather a fair for cloths, groceries and drugs.

At Molunna's fair in good years so much as Rs. 500 are raised from the rents of booths and from the Dhungurs, three-fourths of which goes to Government, and one-fourth to the Zemindar. At Meereconda the small sum raised is equally divided between the Zemindar and village officers.

At the other fairs two pies a shop is levied for the Zemindar, one for the Putwarree, one for the Havildar, Dorwa, or Patell. The Yellwar gets a dhumrec on each shop, and the other village officers small presents.

In my report I have omitted to state that a tappal and banghy dāk from Nakricul to the cantonment of Warungul has been established since March last.

Annexed are drawings* of arms and musical instruments. A specimen of native drawing and painting, the figure of the Dhungurs' god Molunna, accompanies the report.

In the possession of the family of the Surdeshpandyas there is a chronicle of the kings of Warungul. Like all such Indian histories, it bears the stamp of being a compilation from popular traditions at a period not very remote. The miracles it gravely records, the length of reign assigned to each king, deprive it of every claim to being esteemed authentic history, but as a specimen of Brahmin pretence and Brahmin lying, ministering to the childish vanity of the Hindoo, it is perfect in its way ; yet some threads of truth may run through the web of misrepresentation,

* The drawings here referred to, as well as at pages 223, 224 and 270, have not yet been received, but we hope to present them to our readers in a future number, as soon as the promised copies arrive.—Eds.

such as Kundhur, a fortress twenty miles south of the Godaveri, not far from Nandair, being the first seat of the monarchy ; Hunnumconda, where there are remains of extensive fortifications, being the capital before Warungul. For this reason a brief account of the history will be given, illustrating too, as it does, what monstrous deviations from all truth are eagerly seized on by the Indian mind.

The rajahs of Warungul drew their origin from Narrain himself, and counted Brahma and a host of rishees as their ancestors. It appears that one of these heaven-descended mortals came—from whence or for what reason the chronicle is silent—to the Deccan, and settled at Dhurmapoor, a village on the south bank of the Godaveri, that he subdued many rajahs, took four hundred and sixty fortresses, and built the town of Nandair, on the Godaveri. By constant fasting and sacrifices he gained so much heavenly wisdom that he was deemed a meet companion of the gods, and admitted into their abode ; such was his courage that while in the celestial company he stood undaunted before the awful form of Nursing Deo. This so pleased his protecting divinity that she conferred on him a sword, a shield, and a pair of slippers, all of miraculous power, especially the last, for no sooner had he placed his feet in them than he was whirled through the air, and straightway rested in his own capital of Nandair. Armed with his god-given weapons he waged a successful war against the rajah of Chola, whose daughter he married, and on threatening the king of Ceylon with invasion was only diverted from his purpose by submission and promise of tribute. Fortunate in all his wars, he wearied of the world, and for a life of contemplation resigned his sceptre to his son. This son, cursed by a wild beast while out hunting, went mad, but being cured by a gooroo he had a son born to him. Meanwhile his sister also had a son, and between the two children the gooroo divided the kingdom. Then came famine, pestilence, and civil wars, and the next rajah we find reigning at Khandhar, where he waxed great and wealthy, but his munificence was equal to his riches, for on the Brahmins he conferred many thousand villages, and dying he left his throne to his son, who rivalled his father in generosity but not in fortune : for waging war with the king of Kuttack, who was envious of his prosperity, and coveted the possession of his flocks and herds, he lost his life in battle, and his capital of Khandhar was plundered and destroyed. His wife, who was pregnant, fled to Hunnumconda, whither she was followed by her enemy, but the rajah there took pity on her, and by a stratagem rescued her from the wrath and vengeance of the rajah of Kuttack. The son was born in due course, and grew up a fine manly boy, forward in his learning, for every day he repaired to be instructed at the temple of Pudmatcheeamah Devikee, protectress of his fathers. One day he forgot to bring home his writing-board and book ; ashamed of his negligence and anxious to retrieve it, he got up in the middle of the night and proceeded to the temple. At that dread hour the devi and her train were preparing for their horrible revels, but the boy shrank not from the sight of terror, but boldly demanded his board and book from the goddess, who to try his courage had possessed herself of them,—nay, he even endeavoured to snatch them from her grasp, whereat the divinity felt pleased and asked the boy what was the wish of his heart, and he at once replied, “ The rajah of Kuttack slew my father, and I wish to be revenged on him,” on which the devi changed his book into a sword, and his board into a shield, and giving them to the boy told him he would be the father of a race of kings who would reign for a thousand years. When he grew up he placed himself on the throne of his ancestors in Hunnumconda, and began to reign in Shalivahan 236 ; but he rested not till he raised a large force, with which he went up against the rajah of Kuttack, whom he slew. But placing the rajah’s son on the throne of Kuttack he received three crores of pagodas of tribute from him, and returned in triumph to Hunnumconda. In all his enterprises, of war and peace, fortune attended him ; his liberality to Brahmins was unbounded, and after a reign of one hundred and sixty years he left his throne to his son and went to gather lilies with the deities who pluck these flowers in the Pudmagoondum. His name was Madawaramah ; his son Pudmasain Rajah was successful in war with the rajah of Kuttack. His only trouble arose from his want

of offspring, but by assiduously sacrificing to the protecting deity of his house, and the constant offering of pumpkins, he had a son born to him. He died in 474 Shalivahan.

Davenamaraj, his son, reigned till ...	...	...	...	...	557	Shalivahan.
Wernamaraj ...	...	...	...	...	633	"
Goondamaraj ...	...	...	...	...	705	"
Gerkodeveraj ...	...	...	...	...	784	"
Bowanyanakaul ...	...	...	...	...	874	"
Taoteenamah ...	...	...	...	...	918	"

All these rajahs were mighty men of war, fighting and conquering the rajahs of Kuttack, Guzerat, and Maharashtra, and generally returning with three crores of pagodas to their capital, Hunnumconda.

The next rajah bore the name of Poolraj: he was left a minor by his father. The rajah of Kuttack took advantage of this and besieged Hunnumconda, which for twelve years successfully resisted his attacks; in the end the siege was raised by Poolraj invading Kuttack with the usual success of his race. Poolraj was a prince of great piety, continually building or repairing temples, kissing the feet of moonees, and feeding Brahmins; no wonder that such piety should be rewarded by a signal discovery. As some carts were bringing in grain to Hunnumconda one of them without any apparent cause got upset. As it was at night the cartman did not think of raising it till day had dawned, but lay down and slept; in the morning, when they were about to proceed to their task, they saw that the iron rings of the cart wheels had become gold. On this they flew to Hunnumconda, and told the rajah the news, who with his wise men repaired to the spot where the cart had upset, and on beholding the gold [all] were struck with wonder and joy. So they took counsel together and dug on the place where the miracle was done, and in digging they came upon Mahdeo Persabede Shembolingum, which in splendour rivalled the purest gold, and the rajah wished to transport the precious gift of the gods to Hunnumconda, but the sacred stone refused to stir, whereat the king was cast down, and sought more counsel, calling moonees from afar to give him advice, and the holy men performed poojah to the ling and counselled the king to leave the stone where he had found it and then to build a city. So these moonees founded a city which they called Akshsalinuggur, two coss south of Hunnumconda, in Shal. 909, and a road was constructed between the city and the town, and shrines were raised to Mahdeo, to Verabuddroo, to Vishnu and the Saktis, but Mahdeo's shrines in number outstripped them all. As for the expenses of the temples, they had only to place a piece of iron beside the lingum, when straightway it became the purest gold. Now the king had a son born to him, and on the day of his birth he was told that he would fall by his hand, but instead of destroying the infant, as he was advised, the king had him left in the temple of the lingum during the night, where on the morrow the poojarees found him, who informed the king, by whom they were advised to cherish the infant that Heaven had sent them, and the son grew up strong and active, and the king made him a havildar and gave him command of the guard stationed to protect the temple. One night the rajah repaired to the temple to perform his devotions, and coming in unattended, and as it were by stealth, was mortally wounded by his son, who took him for a thief, but before he died he recounted the story of his son's birth, and pointed out that in falling by his hand he had but fulfilled his destiny, and he recommended to the chiefs his son, who unwittingly had stabbed him, to be his successor. Poolraj was slain in Shal. 1020, after a reign of 72 years. In expiation for his crime of parricide, which weighed heavily on his mind, Roodrah-devi-ky made many pilgrimages, weighed himself eight times against gold, which he conferred on the Brahmins, and built temples without number; but in the midst of these pious acts he was called away to combat the rajah of Kuttack, whom he conquered. He reigned 68 years, and died in Shal. 1088. His son Gunnaputty Rajah succeeded: he waged war against the rajah of Deogar, with little success at first, but eventually he was victorious, and compelled the rajah to pay tribute and

confer on him the hand of his daughter. He warred, as usual, with most of his neighbours, and with the wonted success of his ancestors, but the great affliction of his house clung to him, the want of offspring, yet by incessant poojahs he so propitiated the deities that a daughter was vouchsafed to him. He died after constructing a hundred villages, which were all called Gunnahpoor, and many tanks, in Shal. 1149. His widow, during the minority of her daughter, administered the affairs of state. She completed the stone wall of Warungul, begun by her husband, and surrounded the city with an outer wall of mud called Boomi Cottah, and an inner wall Pedda Cottah, which remain until this day. This princess rendered herself conspicuous by planting trees, conferring gifts on Brahmins, and in sacrificing to Pudma Devi; for her piety she was rewarded by success over all her enemies foreign and domestic, and her fortune and happiness were crowned by her daughter giving birth to a son, and her people all called her mother; and in commemoration of her exploits she erected eight pillars in different parts of her kingdom to show that none was so great or powerful as she.

On the birth of her grandson she placed the infant on the throne, and called on all classes of her subjects to salute him as their king, and the hearts of all were rejoiced, and every temple and house was painted, and the streets cleared of all filth and encumbrance, to testify their joy, and a cradle was made for the child, of pure gold richly ornamented with precious stones. She died in Shal. 1187, after a reign of 38 years.

She was succeeded by her grandson Pertab Rudra, the Arthur of Warungul, to whose glory and exploits, albeit he succumbed to the Mussulman power at last, the people still refer with pride. The Mussulmans certainly were foiled in their first attempt to possess themselves of the capital, and hence the admiration that still clings to his name. As to his exploits they are even more extravagant than those of his ancestors. He is said to have had a mercantile navy, which is probable enough, as the people of Telingana were certainly at one time a maritime nation. His fall, which they cannot conceal, is attributed to treachery and destiny: a sirdar of Warungul, Boochoo Reddy, proved traitor and offered for eighteen lacs of rupees to betray his sovereign into the hands of the Mahomedan chief Pooloo Khan; yet before his treachery was consummated the poojarees came to the king to complain that the lingum had become powerless to convert the iron placed near it into gold, and the king rising in affright and tribulation went to pay his devotion to the lingum, from whence he repaired to the shrine of Pudma Devi, and placed the sword and shield she had given to his ancestor a thousand years before at her feet; but in the midst of his devotions the goddess swallowed the sword, and the shield springing up clung fast to her chest. When his ministers and sirdars heard this they all agreed that Pudma Devi had abandoned him, and that he had only to trust to the god of battles. He went out and fought against Pooloo and Shitab Khan, who, by the aid of the traitor Boochoo Reddy, defeated the king and made him prisoner, and sent him to Delhi. Thus far, saving the miracles, there may be truth, although defeat often happens without treachery.

But the *finale* of this veracious history is quite consistent with its tenor throughout. Pertab Rudra was received with great respect by the sovereign of Delhi, who was not a little surprised at discovering three eyes in the forehead of the captive sovereign, on seeing which his regard for him was much enhanced, so he asked pardon of him, and desired to call him brother, entreating him at the same time to return to Warungul and resume his sceptre; but Pertab Rudra declined doing so, being wearied of the toils of government, and requested permission to return to Benares, which the emperor assented to with reluctance. He gave his daughter in marriage to the king of Beejanuggur, divided his treasure among his faithful sirdars, to all of whom he gave portions of his country, and to his brother he left the throne of Warungul. When he had done this he clothed himself in his best apparel and along with his wife proceeded into the midst of the stream of the holy Ganges, and his soul was carried up to heaven in a chariot, to the wonder and joy of all his subjects, in Shalivan 1263.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

*Assessment of the Circar of Warungul according to the Koolkamil,
and the land revenue and rents that it now yields.*

	No. of Villages.	Assessment according to the Koolkamil.	Revenue now realized.
		Rs. a. p.	Rs. a. p.
Pergunna Havalee Chinthalputty.			
Talook Moocherla	14	11,575 13 0	
Do. Nagawarrum	7	6,156 12 0	
Do. Muttawarra	16	15,355 5 9	
Do. Rungoypett	13½	10,877 6 0	
Do. Gheescondah	20	15,029 0 0	
Do. Chellapurthee	6	2,659 0 0	
Total...	76½	61,653 4 9	51,001 0 0
Pergunna Oopul	30	46,702 5 3	26,001 0 0
Pergunna Chendergherrie	21	23,929 9 9	17,901 0 0
Pergunna Sumthamunnium.			
Talook Raycondah	10	11,625 5 6	
Do. Kodavutty Vuncha	4	2,206 6 0	
Do. Deshpandya	4	3,265 15 6	
Do. Venkuttapoorum	11	8,976 2 6	
Do. Yerecherla	7	7,597 4 6	
Do. Wodthala	14	16,821 6 9	
Other Taxes ... ..	...	1,789 5 0	
Total...	50	54,281 12 9	22,501 0 0
Pergunna Hussanabad.			
Talook Unnuth Sagram	18	20,816 2 9	
Do. Dhurma Sagram	11	20,618 15 9	
Do. Deshpandya	20	24,660 15 1	
Do. Deshpandya	4	1,591 7 0	
Do. Mathanapett	22	34,715 2 6	
Do. Summuth Reddial	16	25,251 9 6	23,001 0 0
Kusba Hannumconda	1	1,881 4 0	7,192 0 0
Total...	92	1,29,535 8 7	26,001 0 0
Pergunna Kothaguttoo	19	21,644 0 0	13,001 0 0
Pergunna Kuttachpoorum	14	13,699 14 0	
Pergunna Purkhul	14	24,680 4 0	12,587 0 0
Pergunna Vizianagram.			
Talook Khypurthee	44	64,540 15 3	
Do. Verdanahpett	41	58,816 15 9	
Total...	85	1,23,357 15 0	51,502 0 0
Pergunna Bolleeconda	29	25,624 13 0	
Talook Nagawarrum	15	14,833 6 6	
Total...	35	40,458 3 6	17,001 0 0
Pergunna Paukal.			
Talook Chellavoy	15	9,245 8 0	5,001 0 0
Do. Koorvah	23	10,668 11 6	3,501 0 0
Do. Paukal,	28	53,293 0 9	
Total...	66	73,207 4 3	8,856 0 0
Pergunna Hippagoodum	17	19,053 1 6	8,251 0 0
Pergunna Yellgoor	9	14,489 3 6	2,251 0 0
Pergunna Goteepurthee	11	7,507 8 0	2,701 0 0
Total Rupees...		6,55,187 14 4	2,98,250 0 0
Jagheers		1,11,193 4 6	70,000 0 0
Sahyer Revenue ... ..		.....	14,251 0 0
Grand Total Re....		7,66,381 2 10	3,82,501 0 0

HYDERABAD AFFAIRS.

Estimate of the Expenses of a Cultivator, in Clothes, Furniture and Ornaments.

	Rs.	a.	p.
Two sarees a year for his wife, which he gets for	2	8	0
When he gives the cotton thread to the weaver, 4 chowlees	0	8	0
Clothing for three children	3	0	0
Clothing for himself :—			
Dhotee	1	0	0
Doputta	1	0	0
Roomal	0	8	0
Cummul	0	8	0
Angreka	0	4	0
	Rupees...	9	4 0

a year for clothes if the material be furnished to the weaver.

Utensils.

Tallu—the women's dish of bell-metal	4	0	0
The man's dish of brass	1	4	0
Children's dish... ..	1	0	0
Three lotas holding respectively a half-seer and two seers	3	8	0
A tinned tupella for sour food	1	0	0
A tray for carrying food	3	0	0
	Rupees...	13	12 0

Woman's Ornaments.

Marriage ornament for the neck, representing the lingpoosta, of gold and lac... ..	22	0	0
Another neck ornament	11	0	0
Another neck ornament	12	0	0
Two ornaments for the hair and ears	15	8	0
A silver bracelet	4	8	0
	Rupees...	65	0 0

Dhorwaghiri Sunnud in favour of Mahomed Ryam, and his father, Fakeer Mahomed.

Given in the name of the Surdeshmook and Surdeshpandya in our own talook, situated in the havalee Chintapilly pergunna. There is a village called Singavarum which has for a long time been deserted, we therefore appoint you to restore it : fear nothing on any account but place your reliance on us. You are to try to bring in the ryots and make the village flourishing—by repairing tanks, ponds and wells, and whatever may be the yearly rent of the village you are to make over to the Circar and take a receipt for the same. You must be punctual in paying us our dues, presents to Brahmins, temples, &c., according to custom, and to every one in the village his due. You will receive your due as follows :—2½ maunds sowing in the poonass and 1½ maunds sowing of rice in the tabee near the Chintal Charroo, besides 4 pylees in the khundy from the produce of the village, and in cash one anna in the rupee from the rents paid by toddy drawers, Bunnyas, &c. ; also the gift of two beegas of land, fitted for dry crops, in the rear of a mosque in a field called Guneshpumpoo ; for marriage according to the circumstances of the parties ; and from every field one bundle of common straw and a coonsoo of unhusked grain ; one quarter of a pice for every bullock load of grain passing through the village. We allow you all this and trust you will keep the village in good order.

Signed by the Putwaree.

Countersigned by two of the family of Surdeshpandyas and by the Sheristadar.

Another copy signed as before and countersigned by the Surdeshmookh.

Enams to Temples about Hunnumconda and Warungul.

	Rs.	a.	p.
To a temple of Lutchee Nursing Swamy 1 seer rice a day, 2 pice a day, 3 pukka seers oil, rupees 4½ a month, rupees 9 a year to the Brahmins, one rupee at the Ramzan and Buckreed—one when a new naib is appointed, also rupees 3 from the sayher	18	8	0
To the Hunnumann, &c. two beegas of rice land under the tank of Hunnumcondah, oil rupees [?] 45 a month, rupees 2 Buckreed and Ramzan, and one rupee from a new naib	15	2	0
To a temple of Mahdeo in the town of Hunnumcondah one beega of land, from the Circar rupees 90 a year, from the local taxes rupees 90 a year, and from the general salt tax rupees 180, rupees 9 for oil	369	0	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

	Ra.	a.	p.
To another temple of Mahdeo outside the town, 5 beegas of ground, and for other expenses yearly,	68	0	0
To the temple of Pudmachmee Amah 9½ beegas from the Circar—sayher and village taxes yearly,	159	0	0
To the temple of Sneerungah Naik Swamy 4 beegas of ground—other expenses yearly,	96	0	0
To a temple of Rama "	153	0	0
To a temple of Nursinga Swamy "	63	0	0
To a temple of Seetaram a beega of ground—other expenses allowed by Government yearly,	90	0	0
To another Hunnumann on the tank bund "	228	0	0
To the Mahdeo of Rungumpett 4 beegas of land—other expenses "	123	0	0
To Narsing Swamy (another) "	48	0	0
To a third Hunnumann "	24	0	0
To a Poojawary of Mahdavy "	48	0	0

Tables of Money, Weights and Measures.

4 Cowries	1 Gundah.
2½ Gundahs	1 Tola.
2 Tolahs	1 Dumree.
2 Dumrees	1 Adhela.
2 Adhe'as	1 Pice.
4 Pice	1 Copper Gundha.
15 Gundahs	1 Rupee.

The Halee-sicca rupee is current ; it has not been assayed—at least it does not appear in the money tables of Prinsep, where are to be found other coins of this name, but not the Halee-sicca of this Circar of Hyderabad. In exchange an anna of batta is demanded on the Bagh-Chulnee, with which the Subsidiary Force is paid. No gold coin is in circulation. I made inquiries for old coin, but was not able to procure any ; with the exception of the cowries and pice and rupees these coins are imaginary. There is a large double pice in circulation.

Gold and Metal Weights.

3 Grains of Wheat	1 Gr. of the Abrus precatorius.
4 Seeds of the Ab. p.	1 Chinnun.
2 Chinnuns	1 Masha.
12 Mashas	1 Tola.
24 Tolahs	1 Kutchu Seer.
5 Kutchu Seers	1 Tukree.
8 Tukrees	1 Maund.
20 Maunds	1 Kundlee.

Of the weights brought to me twelve seeds of the Abrus precatorius weighed thirty-two grains of red wheat, but the white wheat is said to be lighter. The masha, a broken piece of porcelain, weighed fifteen grains, and the quarter-tola, a weight of iron, forty-five grains. Silk and tusser cocoons are sold by this weight.

Another weight for Iron, also for Ghee and Tamarinds,

5½ Halee Sicca Rupees	1 Chuttaek,
16 Chuttaeks	1 Seer.
1½ Pucka Seers	1 Tukree.
8 Tukrees	1 Maund.
20 Maunds	1 Kundlee.

The half-chuttaek brought to me weighed 7 drachms and 5 grains, the half-tukree 1 lb. 8 oz. and 5 drachms, the tukree 3 lbs. and 12 drachms. These weights were all of quartz pebbles. The Halee-sicca rupee weighs 173 grains.

Weights for Grain.

82 Halee-Sicca Rupees	1 Seer.
40 Seers	1 Pucka Maund.
3 Pucka Maunds	1 Pulla.

This is the common weight throughout the pergunnas save in the Havalce, where there are 56 seers in the maund,

Grain Measure.

2 Solgas	1 Towa.
2 Towas	1 Pylee.
2 Pylees	1 Udha.
2 Udhas	1 Cponsoo.
2 Coonsos	1 Yeersah.
2 Yeersahs	1 Maund.
20 Maunds	1 Kundlee.

HYDERABAD AFFAIRS.

The solga of teak-wood contained exactly thirty-four liquid ounces, and the solga measure of red wheat weighed 1lb. 12 oz. 4 drs.

Another Grain Measure.

3½ Seers	...	...	...	...	...	...	...	...	1 Pylee.
4 Pylees	...	...	...	...	...	...	...	...	1 Coonsoo.
4 Coonsoos	...	...	...	...	...	...	...	...	1 Maund.
20 Maunds	...	...	...	...	...	...	...	...	1 Kande.

The Pylee and Coonsoo measures are earthen gurrals; a Soop is as much as can be carried on a winnowing basket, and passes for a Coonsoo.

The Seer measure contained exactly one imperial quart.

Long Measure.

4 Tus	...	...	...	...	...	...	...	...	1 Peeree.
3 Peerees	...	...	...	...	...	...	...	...	1 Guz or Cubit.
4 Guz	...	...	...	...	...	...	...	...	1 Kola.

The Tus varies sometimes, as in the above table it measures an inch and a half, at others 2½ inches. The Peeree is the measure of a hand with the thumb extended: this is the cloth measure; but the silk and tusser Guz is reduced to fifteen inches: by this measure too all buildings are estimated. The Telingana Coss is short, about a mile and a half.

Superficial Measure.

16 Guz	...	...	...	...	...	...	...	...	1 Potta.
10 Pottas	...	...	...	...	...	...	...	...	1 Side of a Beega.

which is thus 6,400 sq. yards, or 1 acre, 1 rood, 11 poles and 17½ yards.

Average Price of Articles and Produce sold at Hunnumconda, &c., for six years.

	F. 1251.	1252.	1253.	1254.	1255.	1256.
	A.D. 1841.	1842.	1843.	1844.	1845.	1846.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Gold.....per tolah.	22 4 0	22 8 0	22 12 0	23 0 0	22 12 0	23 0 0
Silver	1 3 0	1 3 3	1 3 0	1 3 3	1 3 6	1 3 6
Brass.....per maund.	14 0 0	13 12 0	13 8 0	13 4 0	13 0 0	13 8 0
Copper.....	16 0 0	16 8 0	17 0 0	17 8 0	16 8 0	16 0 0
Kathael	17 0 0	17 8 0	17 12 0	18 0 0	19 0 0	19 8 0
Pewter.....	6 0 0	5 12 0	5 12 0	5 4 0	7 0 0	7 8 0
Pinchbeck	12 0 0	12 0 0	12 0 0	12 0 0	12 0 0	12 0 0
Tin	13 0 0	14 8 0	14 0 0	16 0 0	16 0 0	15 0 0
Iron.....	1 2 0	1 2 0	1 4 0	1 4 0	1 2 0	1 4 0
Lead.....	4 4 0	4 8 0	5 0 0	4 4 0	5 0 0	4 8 0
Average rate of Paddy for the year.....per candy.	18 8 0	19 8 0	19 8 0	23 8 0	32 0 0	26 12 0
Do. of Jowaree	19 8 0	21 0 0	20 0 0	28 0 0	38 0 0	41 8 0
Do. of Chenna	36 0 0	40 0 0	53 0 0	35 0 0	53 0 0	60 0 0
Do. of Moong	31 0 0	30 0 0	30 0 0	.....	29 0 0	48 0 0
Do. of Toor	20 4 0	19 0 0	18 0 0	20 8 0	26 0 0	38 0 0
Do. of Wheat .....	.....	.....	42 0 0	43 12 0	50 8 0	25 0 0
Do. of Oord .....	.....	.....	38 0 0	36 0 0	.....	.....
Do. of Samah	10 0 0	10 0 0	9 0 0	15 0 0	15 0 0	16 0 0
Do. of Ralah	12 0 0	12 0 0	13 0 0	14 0 0	16 0 0	16 0 0
Do. of Indian Corn.....	9 0 0	10 0 0	10 0 0	13 0 0	.....	.....
Do. of Castor Oil .....	.....	.....	.....	.....	.....	.....
Do. of Bajree	10 0 0	10 0 0	9 0 0	9 0 0	.....	.....
Do. of Goor.....per maund.	2 2 0	1 2 0	1 3 0	1 6 0	1 15 0	55 0 0
Do. of Sugarcandy .....	.....	.....	.....	6 0 0	5 8 0	2 0 0
Do. of Sugar .....	.....	.....	.....	3 0 0	28 0 0	.....
Do. of Ghee	3 12 0	3 8 0	3 6 0	3 4 0	5 2 0	4 4 0
Do. of Sweet Oil	3 8 0	4 8 0	3 8 0	3 8 0	4 0 0	4 8 0
Do. of Salt	0 8 6	0 9 0	0 9 0	0 12 0	0 11 0	0 12 0
Do. of Chillies	1 2 0	1 2 0	0 14 0	1 8 0	1 8 0	1 9 0
Do. of Tamarind	1 0 0	1 0 0	0 6 0	0 14 0	0 6 0	0 8 0
Do. of Saffron.....	1 4 6	0 14 0	1 11 0	1 0 3	1 12 0	1 12 6
Do. of Coconut .....	.....	.....	.....	.....	.....	.....
Average rate of Betel-nuts for the year.....	.....	.....	.....	.....	5 0 0	5 0 0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

	F. 1251.	1252.	1253.	1254.	1255.	1256.
	A.D. 1841.	1842.	1843.	1844.	1845.	1846.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Aver. rate of Dried Dates. per md.	.....	.....	.....	4 0 0	3 14 0	.....
Do. of Cardamoms. "	.....	.....	.....	48 0 0	60 0 0	.....
Do. of Cloves	20 0 0	20 0 0	12 0 0	14 0 0	13 8 0	13 0 0
Do. of Jeerah	5 0 0	4 0 0	5 0 0	5 0 0	4 4 0	5 0 0
Do. of Manty	1 8 0	1 12 0	1 4 0	1 12 0	2 0 0	2 4 0
Do. of Sajeera .....	.....	.....	.....	28 0 0	36 0 0	.....
Do. of Almonds ...	.....	.....	.....	6 0 0	6 0 0	.....
Do. of Mace .....	.....	.....	.....	72 0 0	60 0 0	99 0 0
Do. of Nutmeg .....	.....	.....	.....	60 0 0	48 0 0	.....
Do. of Pepper	12 0 0	12 8 0	7 0 0	7 0 0	8 0 0	6 0 0
Do. of Alum	3 0 0	2 4 0	2 8 0	3 4 0	3 0 0	2 8 0
Do. of Camphor ...	96 0 0	96 0 0	120 0 0	138 0 0	108 0 0	108 0 0
Do. of Ginger	3 12 0	3 8 0	4 0 0	3 12 0	4 8 0	5 8 0
Do. of Opium per lb.	.....	.....	.....	10 0 0	10 0 0	.....
Do. of Incense (Ood) "	.....	.....	.....	18 0 0	21 0 0	.....
Do. of Catechu ...	.....	.....	.....	9 0 0	10 0 0	.....
Do. of Tobacco ...per maund.	.....	1 12 0	1 14 0	1 12 0	2 0 0	2 0 0
Do. of Lac	6 6 0	6 4 0	.....	.....	.....	.....
Do. of Bees' Wax...	.....	12 0 0	10 12 0	11 14 0	10 9 0	11 12 0
Do. of Modee	8 8 0	9 0 0	9 0 0	7 0 0	6 4 0	5 8 0
Do. of Honey	4 8 0	5 0 0	5 0 0	5 0 0	5 0 0	5 0 0
Do. of Madder	1 8 0	1 8 0	2 0 0	2 0 0	2 0 0	2 0 0
Do. of Cotton	4 0 0	.....	.....	.....	4 0 0	4 8 0
Do. of Silk Raw ... seers 1½	18 0 0	.....	.....	.....	18 0 0	18 0 0
Do. of Tisser	6 0 0	5 0 0	.....	.....	6 0 0	6 0 0
Do. of Movah ... per candy.	8 0 0	10 0 0	12 0 0	15 0 0	8 0 0	8 0 0
Bullock's Hide	0 8 0	.....	.....	.....	0 8 0	0 8 0
Cow's Hide	0 8 0	.....	.....	.....	0 8 0	0 8 0
Buffalo's Hide	1 0 0	.....	.....	.....	1 0 0	1 0 0
Sheep Skin	0 2 0	.....	.....	.....	0 2 0	0 2 0
Cumblies	0 6 to	.....	.....	.....	0 10 0	.....

Imports into Warungul, with the Taxes levied on each article, from the Accounts of the Sahyer Naik.

Land custom levied on jaggery coming from Masulipatam through the pergunna of Hussnabad, if brought by the ryots of Hunnumcondah and Muttawarra, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.

Deetcheontah ...	Rs. a. p.
Havalee ...	0 14 3
Elgoor ...	0 11 0
Hunnumcondah ...	0 2 6
If brought by the ryots of other pergunnas not belonging to the Circular of Warungul, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.	0 3 0
Deetcheontah ...	1 8 0
Havalee ...	1 11 0
Elgoor ...	0 3 3
Hunnumcondah ...	0 7 0
From Juggiahpet through Paukhal, Hussnabad, Paukhal Hussnabad ...	1 3 9
Havalee ...	0 11 0
Elgoor ...	0 2 9
Hunnumcondah ...	0 3 0
If brought by other ryots.	
Havalee ...	1 15 0
Paukhal Hussnabad ...	1 11 3
Elgoor ...	0 3 3
Hunnumcondah ...	0 7 0
Land custom levied on tobacco coming from Masulipatam to Muttawarra and Rannahpet, pergunna Havalee, if brought by the ryots of Rannahpet and Muttawarra, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart ...	4 15 6
Land custom levied on tobacco coming from Juggiahpet to Muttawarra, if brought by the ryots of Juggiahpet who reside at Rannahpet; if shopkeepers, charge at the rate of 3½ bullock loads, equal to 30 maunds on a cart ...	12 11 0
If brought by the ryots of Juggiahpet not shopkeepers, charge at the rate of 3½ bullock loads, equal to 30 maunds on a cart ...	15 9 0
If brought by the ryots of Hunnumcondah, Muttawarra and Rannahpet from Juggiahpet, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart	8 12 0
If brought by the ryots of Juggiahpet to Hunnumcondah and Muttawarra, charge at the rate of 3 bullock loads, equal to 24 maunds ...	7 15 0

HYDERABAD AFFAIRS.

Land custom levied on wheat and grain coming from Chanda, Dhunda, Madapoor, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 2½ pullas on a cart.

	Rs.	a	p.
Paukhal	0	10	0
Chendragiri	0	9	0
Havalee	0	6	0
Hunnumcondah	0	1	6
If brought by the ryots of other pergunnas not belonging to the Circar of Warungul, charge at the rate of 3 bullock loads, equal to 3 pullas on a cart.			
Paukhal	0	15	3
Chendragiri	0	12	9
Havalee	0	13	6
Hunnumcondah	0	3	6
Land customs levied on steel, lac, bees' wax and coosumba, Carthamus tinctorius, coming from Chanda, Babapett and Madapoor, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.			
Paukhal	1	8	9
Chendragiri	1	3	9
Havalee	1	3	3
Hunnumcondah	0	3	9
If brought by other ryots, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.			
Paukhal	1	13	6
Chendragiri	1	3	9
Havalee	1	3	3
Hunnumcondah	0	7	0
Land customs levied on cotton coming from Babapett, for one bullock load.			
Land customs levied on the following articles coming from Juggiahpett—cocoanuts, tin, brass, copper, lead, katheel, bellmetal, pewter, dry ginger, pepper, cubebs, long pepper, brimstone, blue vitriol, mercury, camphor, salammoniac, alum, borax, vermilion, sulphur, cloves, cardamoms, mace, nutmegs, cinnamon, peppy seed, aloes, opium, raisins, coriander seed, turmeric, soap, &c., if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.			
Kothaguttoo	1	8	9
Vizianagrum	1	3	9
Havalee	1	3	3
Hunnumcondah	0	3	0
If brought by other ryots, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.			
Kothaguttoo	2	2	9
Vizianagrum	1	13	6
Havalee	1	15	0
Hunnumcondah	0	7	0
Land custom levied on ghee coming from Mungapett, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, or 20 maunds on a cart.			
Kothaguttoo	1	8	9
Havalee	1	3	3
Hunnumcondah	0	3	0
If brought by other ryots, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.			
Kothaguttoo	2	2	9
Havalee	1	15	0
Hunnumcondah	0	7	0
Land custom levied on Tusser, if brought by the ryots of Hunnumcondah, charge per piece			
	0	1	0
Silk thread, by the ryots of Hunnumcondah, charge at 1½ seers			
	0	3	0
Raw silk, charge per maund			
	2	0	0
Land custom levied on the following articles coming from Shumshahbad to Hunnumcondah—asafoetida, coffee, sugar, almonds, plums, dates, cocoanuts, mace, cloves, cardamoms, nutmegs, brass, copper, tin, pewter, lead, katheel, and cloths, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.			
Vizianagrum	1	3	9
Havalee	1	3	3
Hunnumcondah	0	3	0
If brought by other ryots, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.			
Vizianagrum	1	13	6
Havalee	1	15	0
Hunnumcondah	0	7	0
Land custom levied on the following articles coming from Masulipatam to Hunnumcondah—cocoanuts, cloves, cinnamon, cardamoms, mace, nutmegs, almonds, indigo, chillies, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.			
Kothaguttoo	1	8	9
Vizianagrum	1	3	9
Havalee	1	3	3
Hunnumcondah	0	3	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

If brought by other ryots, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.

	Rs.	a.	p.
Kothaguttoo	2	2	9
Vizianagrum	1	13	6
Havalee	1	15	0
Hunnumcondah	0	7	0
Land custom levied on salt coming from Masulipatam to Hunnumcondah by Bunnyas, 100 bullock loads	18	0	0
If brought by Pareka ryots, 100 bullock loads	30	0	0
Land custom levied on cloths coming from Hyderabad to Hunnumcondah, 1 bullock load	4	3	0
Land custom levied on the following cloths at Hunnumcondah coming from Masulipatam, Juggiahpet and Shumshahbad :—			
Longcloth, per piece	0	2	0
Barchop do.	0	2	0
Red cloth do.	0	6	0
White handkerchiefs, each	0	0	3
Mushroo (Calcutta)	0	1	0
Mushroo (Aurangabad), per piece	0	2	0
Tusser	0	1	6
Europe chintz, per piece	0	1	0
Blue saree, each	0	1	0
Soormaie, do.	0	1	0
Jaconet, per piece	0	2	0
Madapalum	0	2	0
Silk cloth, per piece	0	1	0
Goomty, do.	0	1	0
Doria, do.	0	1	0
Carwa, do.	0	1	0
Woollen cloths, per yard	0	0	6
Mullmull, per piece	0	1	0
Cadee, do.	0	0	6
Agabancee, do.	0	1	0
Soosee, do.	0	1	0
Soosee Davaraconda	0	2	0
Land custom levied at Ramnahpet and Muttawarra.			
Longcloth, per piece	0	4	0
Barchop, do.	0	2	0
Red cloth, do.	0	6	0
Juggiahpet handkerchiefs	0	0	3
Murryalagherry, do.	0	1	0
Muslin, per piece	0	1	0
Mushroo (Calcutta)	0	1	0
Mushroo (Aurangabad)	0	2	0
Tusser	0	1	0
Europe chintz, each	0	1	6
Meelamber saree	0	1	0
Jaconet, per piece	0	2	0
Madapalum, do.	0	4	0
Cadee, do.	0	0	6
Agabancee, do.	0	1	6
Silk cloths, do.	0	1	0
Goomty, do.	0	1	0
Doria, do.	0	1	0
Carwa, do.	0	1	0
Soosee, do.	0	0	6
Soosee Davaraconda, do.	0	2	0
Woollen cloths, per yard	0	0	6

No. 2.

List of articles produced and consumed in the Circar of Warungal, with the taxes levied on them.

Land custom levied on paddy, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 2½ pullas on a cart.

Kothaguttoo	0	4	9
Vizianagrum	0	5	3
Havalee	0	3	0
Hunnumcondah	0	0	9
If brought by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 3 pullas on a cart.			
Kothaguttoo	0	6	3
Vizianagrum	0	7	6
Havalee	0	6	9
Hunnumcondah	0	1	9

HYDERABAD AFFAIRS.

Land custom levied on rice, wheat, grain, jowaree, moong, toor, cotton thread, &c., if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 2½ pullas on a cart.

	Rs.	s.	p.
Havalee	0	6	0
Vizianagrum	0	6	6
Kothaguttoo	0	4	3
Hunnumcondah	0	1	6

If brought by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 3 pullas on a cart.

Havalee	0	13	9
Vizianagrum	0	15	3
Kothaguttoo	0	12	9
Hunnumcondah	0	3	6

Land custom levied on tamarind, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 2½ pullas on a cart.

Havalee	0	6	0
Vizianagrum	0	10	0
Kothaguttoo	0	9	0
Hunnumcondah	0	1	6

If brought by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 3 pullas on a cart.

Havalee	0	13	8
Vizianagrum	0	15	3
Kothaguttoo	0	12	9
Hunnumcondah	0	3	6

Land custom levied on ghee, oil, honey, &c., if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.

Havalee	1	3	3
Vizianagrum	1	3	9
Kothaguttoo	1	8	9
Hunnumcondah	0	3	0

If brought by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.

Havalee	1	15	0
Vizianagrum	1	13	6
Kothaguttoo	2	2	9
Hunnumcondah	0	7	0

Indian madder, per maund

Country coarse paper, 1 bullock load

	0	1	0
	0	4	0

Land custom levied on Moyah coming from Cooroova, if brought by the ryots of Hunnumcondah, charge at 2½ bullock loads, equal to 20 maunds on a cart.

	3	9	3
--	---	---	---

If brought by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart

	4	4	6
--	---	---	---

Land custom levied on iron coming from Tateecondah and Mulkanoor, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart

	4	14	6
--	---	----	---

Land custom levied on jageery, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.

Havalee	0	11	0
Deetchcontah	0	5	9
Elgoor	0	2	6
Hunnumcondah	0	3	0

If brought by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 24 maunds on a cart.

Deetchcontah	1	8	0
Havalee	1	11	0
Elgoor	0	3	3
Hunnumcondah	0	7	0

Land custom levied on the following articles coming from Hussunpurty, Canalapoor, Rungapoor, Goodoor.

Saree, per piece	0	4	0
Saree, silk, per piece	0	6	0
Cadee, do.	0	0	6
Cumblie, coarse	0	0	3
Dhovaitee	0	1	0

Land custom levied at Hunnumcondah and Muttawarra on cattle sold to any of the ryots.

Bullock or Cow	0	4	0
Buffalo	0	4	0
Horse	0	1	0

Land custom levied on saltpetre, if brought by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 20 maunds on a cart.

Havalee	1	3	3
Vizianagrum	1	3	9
Hunnumcondah	0	3	0

If brought by other ryots.

Havalee	1	15	0
Vizianagrum	1	3	9
Hunnumcondah	0	7	0

No. 3.

List of articles produced in the Circar of Warungul that are exported, with the duties levied on them.

	Rs.	a.	p.
Land custom levied on carpets passing through Nussacal to Hyderabad, at 40 in each bundle	1	8	0
Land custom levied on carpets passing through Cothacondah Hussnabad to Hyderabad, at 40 in each bundle	2	0	0
Land custom levied on rice, jaggery, moong, toor, oil seeds, &c., if carried by the ryots of Hunnumcondah, charge at the rate of 2½ bullock loads, equal to 2½ pullas on a cart.			
Hunnumcondah	0	1	6
Havalee	0	6	0
Vizianagrum	0	10	0
If carried by other ryots not belonging to the Circar, charge at the rate of 3 bullock loads, equal to 3 pullas on a cart.			
Hunnumcondah	0	3	6
Havalee	0	13	6
Vizianagrum	0	15	3

No. 4.

Articles passing through the Circar that pay land duty.

Land custom levied on salt coming from Masulipatam to Hyderabad passing through Hunnumcondah and Vizianagrum, if carried by Ajmeera Brinjaries for Roopa Naik, 100 bullock loads,	11	8	0
For others—100 bullock loads... ..	13	0	0
If carried by the Bhoja Koonosode, 100 bullock loads	14	8	0
Do. do. Roopa Cavedey, 100 bullock loads	14	8	0
Do. do. Bavasing, 100 bullock loads	11	8	0
Do. do. Lutchma Iatode, 100 bullock loads	12	8	0
If passing through Outapoor, carried by the Budavut Boda Brinjaries, 100 bullock loads	8	14	0
If carried by the Koka Naik, 100 bullock loads	8	2	0
Do. do. Malt Iote Vallo Sunko, 100 bullock loads	8	14	0
Sunker Chowka Baunote, 100 bullock loads	0	10	0
Land custom levied on salt coming from Masulipatam to Elgondalah and Moolungoor passing through the Circar, 100 bullock loads	39	11	0

Wages.—In towns wages are paid in money and in grain, in the country in grain, or in grain and money combined. Coarse paddy and jowaree are used for payment. In certain dear years two seers of jowaree go for three seers of paddy, but in seasons of plenty they are reckoned of equal value. Since the force belonging to the Contingent moved to Warungul the wages of mechanics have risen from 50 to 100 per cent. while employed in cantonment, but this is no fair criterion of the rate throughout the Circar.

Wages per Month.

	Rs.	a.	p.
A man working in the field as a labourer receives two maunds of paddy or two to one and a half of jowaree per month with one rupee, if he chooses he may receive the whole in grain, and if he agrees for a money payment he gets from Rs. 3 to	2	8	0
A woman or a boy working in the field receives three pice a day or a maund and a half of grain per month	1	8	0
The chuckler who assists at the moat gets a pylee of grain a day and a bundle of unthreshed straw ... ..	.....	
All tradesmen, as blacksmiths, carpenters, weavers, &c., get from 2 annas to 3 annas a day, from Rs. 3-12 to	5	0	0
Children who are much employed in carpet weaving at Mutwarrath, owing to their fingers being more pliable than those of adults, receive 3 pice a day.			
Persons engaged in very hard work, such as the bellows-men in the manufacture of iron, receive a pylee of grain and five pice a day. The woman who pounds the ore gets a pice a day in addition to the usual allowance of rice.			
For weaving twelve yards of tussar the weaver gets Rs. 4.			
For dyeing three pounds of cotton or tussar the dyer receives one rupee.			

Statistical Table of the Circar Warangul, Soubah Hyderabad.

HYDERABAD AFFAIRS.

	Villages and Hamlets.		Tanks and Wells.		Ploughs.		Cattle.		Carts.		INHABITANTS.																					
	Inhabited.	Dwelled.	In Repair.		Out of Repair.		Total.	Rice.	Dry Grains.	Ploughing and Draught Cattle.	Other Cattle.	Total.	Bovars.	For Hire.	Total.	Meerassada.			Cultivators or Ryots.			Mortgaga.										
			Total.	Moats.	Total.	Moats.										Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.			
1. Hava'ee and Parkall ...	94	16	110	702	752	1454	382	1035	979	2014	5409	36637	42066	345	221	566	1201	1949	2005	1881	5835	1056	1975	2051	1591	5617	1941	3118	3393	3280	9791	
2. Oopul.....	37	13	50	262	323	585	218	466	997	1463	8344	15722	19066	133	38	191	565	996	1021	853	2870	915	1323	1557	1211	4291	803	1389	1442	1181	4012	
3. Chandraherry.....	32	1	33	220	130	359	215	3-0	690	1070	2325	13172	15197	112	73	185	450	844	816	833	2493	444	919	881	789	2589	500	887	848	841	2571	
4. Kothagutta Kotajoor.....	29	11	40	91	120	211	10	325	574	899	1672	12944	14616	45	91	136	295	513	519	407	1439	477	916	912	682	2510	427	107	769	621	2097	
5. Pantul and Husabad.....	43	25	68	273	450	722	174	409	362	771	1723	10306	12087	39	20	59	303	540	575	571	1687	424	693	687	626	2006	616	879	990	986	2555	
6. Kothakondah Husabad.....	72	20	101	617	695	1312	683	1044	865	1909	5386	35895	41281	167	85	252	988	1622	1690	1576	4888	935	1698	1802	1482	4982	1546	2462	2495	2112	7070	
7. Visianugger and Valpecondah.....	70	10	80	696	1047	1743	700	853	968	1821	4151	40264	44515	40	13	53	1090	1623	1676	1526	4825	1051	1743	1849	1481	5023	1430	2284	2352	2204	6840	
8. Bolicondah.....	31	11	42	408	296	704	493	630	385	1015	2034	18966	21000	...	...	...	408	647	628	609	1894	418	703	755	682	2140	380	538	574	623	1735
9. Sumthamam and Chellavoy.....	45	19	64	97	63	160	9	619	225	844	1700	5026	7626	...	50	50	244	362	373	301	1036	313	489	523	371	1383	765	1078	1145	854	3037	
10. Gootipurthy.....	4	4	8	37	176	213	36	62	28	90	180	2393	2773	...	...	...	61	109	96	125	330	64	111	111	135	357	42	71	62	91	224
11. Yellagoor.....	5	4	9	24	92	116	9	45	19	64	128	459	537	...	...	...	41	57	64	62	183	41	67	62	50	173	20	27	25	17	69
12. Koorva.....	64	...	64
JAGHEER VILLAGES.																																
Warangul Fort and Illintha.....	2	...	2	41	47	88	47	37	70	107	292	2444	2736	18	9	27	80	148	138	92	375	31	55	67	50	172	127	192	209	167	568	
Pargunes Husabad, Valpeondah, and Oors	37	14	51	235	183	418	289	433	332	765	2034	17096	20130	42	39	81	491	838	915	621	2372	367	480	469	349	1298	653	1115	1137	875	3127	
Khajestet.....																																
Total.....	565	157	722	3711	4374	8083	3265	6338	6194	12832	30878	212504	249882	961	639	1600	6277	10248	10512	9457	30217	6176	11372	11723	9452	32547	9259	14707	15436	13853	48996	

Statistical Table of the Circar, &c. (continued.)

7	Hindoo—Men, Women, and Children.....	1,3621	{	128651 Total.
	Mussalmen— Do. do.	5030		

(MADRAS JOURNAL OF LITERATURE AND SCIENCE, VOL. XV., No. 36, 1849.)

STATISTICS OF THE CIRCAR OF DOWLUTABAD. By Surgeon W. H. BRADLEY,
8th Regiment Nizam's Infantry.

The Circar of Dowlutabad is an extensive district in the province of Aurungabad, averaging 60 miles in length and 50 miles in breadth.

Area. It is situated between the 19th and 21st degrees of northern latitude, on an extent of hill and plain bounded north by Kandesh, east by Beytelbarree and Jaulnah, south by Peytun, and west by the Ahmednuggur districts, the windings of the Godavery marking its limits upon the south-west. According to Arrowsmith's map, its area may be roughly estimated at about 2,900 square British miles, which, reckoning the population at 194,767 inclusive of that within the city of Aurungabad, gives 67 souls to the square mile.

The geological features of the whole district are simple and unvaried, forming as it does an integrant portion of the great trap formation of Central India, the leading characteristics of which are all present.

Geological Structure. The prevailing rocks throughout appear to be a clay stone, porphyry, or amygdaloid through which basalt is disposed either stratiformly in horizontal masses, or as intrusive veins and dykes; in all instances assuming a crystalline form which has conformed to the circumstances under which it had been ejected, and is either columnar, spheroidal, vesicular or amygdaloidal; these varieties are frequently observed passing into each other by such insensible gradations that it becomes almost impossible to assign distinct characters to the rocks so circumstanced.

A series of narrow ranges traverse the Circar in a direction almost east and west, their greatest height above the plains not exceeding seven hundred feet, all displaying in a marked manner the peculiar streaked appearance noticed as so remarkable a feature in the Vindhya range; and according as the rock that caps them happens to be composed of the hard or softer varieties of trap, so are their summits tabular or rounded.

The chain of hills upon the south have no particular name assigned them, but appear to be prolongations of the Sichel range; those upon the north are continuations of the Balla Ghat or southern boundary of the Berar valley, that portion within the Circar being known either as the Gowtala or Ajunta Ghats; this barrier presents steep and precipitous sides towards the low country of Kandesh, affording in a few instances difficult passage for wheeled carriages, through narrow rugged passes. The lofty peaks and projecting spurs along this range present several striking examples of the natural defences of a mountain fastness.

An enumeration of the principal rocky masses and minerals met with in the district is here given.

1. Basalt occurring columnar in horizontal masses, the columns large, irregular and perpendicular to their planes; texture close-grained, of a dark-greyish colour internally, whilst the surface is of a reddish or a pale-buff color. When the basalt occurs in dykes, the rock is disposed in prisms with vertical segments of small dimensions and very compact texture, generally showing purple stains in the fracture.

2. Basalt of a compact nature whose structure is globular, and on decomposing exposes a series of spherical coatings; small crystals of olivine are plentifully disseminated throughout.

3. Basalt of an earthy fracture, very close texture, dark colour, tough, and myielding under the hammer.

4. Phonolite, another compact variety of basalt of a greyish colour, fissile, and ringing with a metallic sound when struck, cleaving readily into convenient forms: it is in request for building purposes.

5. Wacke or indurated clay—This rock is met with in every degree of induration, and forms the vehicle for the greater portion of imbedded minerals found in the district.

6. Amygdaloid Trap.—The basis of this rock is wacke variously coloured from grey to buff having shades of light-green and pink with every gradation of hardness; it is seen interposed between darker basaltic strata, the association with which gives the streaked appearance to the bared sides of the mountains. Numerous silicious minerals are scattered throughout the rock of all forms and sizes;

oftentimes irregular cavities of large dimensions are seen, whose sides are lined with calcareous spar, rose and rock crystals, and cachalong.

7. Red Amygdaloid Clay Stone.—This rock is very frequent along the lower bases of the hills, its colour varying from a pinkish hue to a bright brickdust red and chocolate; it contains cavities occupied with shining zeolitic spar, or tabular and flattened chalcedonic minerals, coated with chlorite earth. It is not unusual to find the cavities empty and their sides covered with earth of a deep yellow or light-green colour.

8. Red Clay Stone Propiery.—A rock with sharp fracture and inclined to a fissile character. Its imbedded minerals are zeolite and silicious crystals generally in small rounded forms; sometimes the contained minerals blend into the general mass, as specks or splashes, or by their infrequent occurrence confer the condition approaching to a simple rock. It is susceptible of a high polish, and is admirably adapted for ornamental architectural purposes.

9. Ferruginous Clay Stone.—This is the ferruginous clay stone of Dr. Macculloch, and to be distinguished from the rock so termed by Dr. Buchanan, which is laterite. It is generally of a purplish grey colour within, coated without with a brickdust or livid red, usually seen under semicolumnar basalt, and reposing on globular trap rocks, varying in breadth from six or eight inches in two or three feet. Its structure is best observed in the beds of nullas, or passes in the hills, where it may be seen taking a waving line as if adapting itself to the inequalities of the rock it reposes on; where its surface is exposed (which is reddened) there are seen what at first sight has much the appearance of ripple marks, being slight ridges or elevations arranged in semicircular sweeps in an uniform manner, which project at their centre, as if produced by the force of some impulsive power, and terminate in a thin rounded margin; a series of circular elevations are sometimes seen as though a viscid mass in flowing tardily onwards had met with some obstruction, and hardened in the act of receding from the obstacle. Very remarkable fistulous cavities are seen in this rock filled with zeolitic or calcareous spar, or having merely the sides coated with green earth. These tabular bodies are all observed to be disposed at right angles to the surface of the rock they are imbedded in.

10. Earthy Clay Stone.—An ochreous bed of red earthy clay stones if often seen lying under, and upon the same description of rocks as the preceding variety is associated with and is apparently the same rock modified by circumstances: its breadth is the same, but it is generally found as a soft earth, occasionally passing into a rock resembling earthy jasper; when in its soft condition it separates into vertical masses with a conchoidal fracture, flying into numerous fragments from the slightest blow of the hammer.

11. Earthy Lime Stone.—A rock abounding in the amygdaloid wacke strata, occupying veins and seams, and particularly plentiful towards the lower portions of the hills.

12. Calcareous Tuff.—Very extensive formations of this substance are met with, occupying beds of various depths along the lower levels of the valleys, and near the base of the hills, often assuming the character of a semicrystalline body.

13. Jasper.—This mineral occurs in large beds amongst the amygdaloid wacke, assuming various shades of green, yellow, red and black, the blending together of which in spots and veins gives the rock a truly splendid appearance: its edges are translucent, with the exception of the black varieties. Heliotrope occurs also in great abundance.

The following minerals are those principally found in the amygdaloid beds:—

EARTHY MINERALS.		
<i>Silica.</i> —Rose Quartz.	Heliotrope.	Onyx.
Milk Quartz.	Cachalong.	Jasper.
Rock Quartz.	Hornstone.	Hollandite.
Amethystine Quartz.	Red and white Carnelian.	Scillite.
Semi-Opal.	Agate.	Hornblende.
Chalcedony.	Mass Agate.	Aguite.
<i>Magnesia.</i> —Olivine.	<i>Acidiferous Earthy Mineral.</i> —Carbonate of	
<i>Potash.</i> —Felspar.	Lime.	
Chlorite.	Calcareous Spar.	
<i>Soda.</i> —Mesotype.	Opaque Green Calcareous Spar.	
<i>Acidiferous Alkaline Mineral.</i> —Nitrate of Potash.	Cud Tuff.	

A few general remarks will close this brief sketch of the chief rocks and minerals of the Circar.

The basalt of the range is much mixed up with Olivine and Felspar, the presence of the latter causing the rock to disintegrate, and become a very unfit material for building, as may be witnessed in the crumbling walls and tombs around Aurungabad and Rauzah.

The purple Amygdaloid rock is the characteristic one of the lower levels, and in it are to be found the cave temples of Ellora and Aurungabad.

Basaltic dykes abound throughout the Amygdaloid trap, varying in thickness from a few inches to twenty and upwards. Unlike the dykes of Great Britain and Ireland, they do not appear to have occasioned the slightest disturbance of the strata they have passed through : around Aurungabad several striking instances of these dykes are to be met with—at one place in particular on the road to Dowlutabad, where the wall-like appearance and prismatic structure of the rock is distinctly disclosed by having been cut through for the highroad to pass. It is observed to leave the range at about two-thirds its way up, forms a sloping shoulder to the hill, and descending on the plain passes away in a south-west direction, its course being distinctly marked by an upheaving of the plain. Other good examples of these intrusive rocks may be seen ridging the surface between Hursool and the Delhi Gate of Aurungabad.

Silicious dykes are of common occurrence in the wacken beds. Wherever they may have intruded, the rock on either side to the distance of some inches has become indurated and altered in colour ; silicious minerals are abundant upon the plateaux of the hills in the vicinity of Gowtala, Kunhur, and Rauzah. Jaspideous clay stone variously coloured and Heliotrope are met with in great profusion and beauty, as well as fine specimens of calcareous spar, and a peculiar variety of opaque calc spar of a pale green colour is apparently so tinged by chlorite : to these may be added the several varieties of quartz. The zeolitic minerals are principally fallen in with below the hills, generally along the beds and banks of the larger nullas, where beautiful varieties of the foliated and radiated description abound.

Calcareous conglomerates overlaid by nodular basalt may be seen in the exposed banks of the Sewna river at Kunhur ; the buried masses are rolled and waterworn, and similar in their nature to the present shingle of the river bed.

The natural diversities in the aspect of the country are great, wide undulating plains occupying the south and west, offering a far tamer description of scenery than is observed towards the north and east, where the Circar is seen rising into an elevated region crossed by a succession of narrow ranges whose sides, though bare and rugged, enclose valleys and dells of singular beauty and fertility. Their perennial streams produce a constant verdure, in pleasing contrast to the arid look the plains put on shortly after the ceasing of the rains ; the mountain streams escaping to the low lands are all seen trending their course towards the great bed of the Godavery, in which direction the whole of the plains decline ; a low stunted vegetation, principally composed of Cassia, Acacia, Capparis, Mimosa, Prosopis, and Carissa, prevails upon the plains ; whilst proceeding northward well-wooded districts appear with a jungle vegetation often present among the ravines and gorges of the higher ghats.

Though a very considerable proportion of the surface be occupied by mountainous tracts and soil of a barren nature, still allowing for this deduction it contains much land of a very superior nature, manifested in the luxuriance of the growth of the cane and poppy and heavy corn crops raised throughout the Circar.

The cultivated soils are of two descriptions ; that prevailing on the higher tracts is generally of a heavy rich aluminous character, whilst on the plains it is principally a light and fertile loam, in either case of no great depth and resting upon a rocky substratum.

These two soils are derived from the wearing away of the surface rocks, the basalt going to form the stiff dark soil, whilst the amygdaloid wacken disintegrates into a friable earth, the lime and sandy particles of which mingling with the stiff aluminous soil counteracts its tendency to contract in the hot weather, as well as giving it higher powers of absorbing moisture ; on the other hand, the wasting of

the basaltic rocks mixing with light friable earth converts it into rich loamy lands, diminishing its radiating powers and causing it to be more retentive of moisture.

Such is the exuberant fertility of basaltic soils in general that some are said to bear wheat cropping for thirty years in succession without a fallow: the secret rests in the knowledge that those inorganic substances plants require for their healthy condition are lavishly afforded in the decomposition of these rocks, which year by year are spontaneously undergoing chemical changes by the alternate influence of heat, moisture, light and air, and thus, unseen, are constantly restoring to the soil those inorganic substances the crop has been consuming. In the absence of these facts, it would be difficult otherwise to conceive how such fertility could exist in such a wretched-looking soil, but here appearances are no criterion of its quality.

The number of beegas contained in the whole Circar is estimated at 18,56,266, of which the Baghaet lands, or such as receive the benefits of irrigation, amount to 54,263 beegas, 15 pds. The remaining cultivated portion comes under the head zeroyet, and is stated at 4,80,543 beegas, 17½ pds.; besides these 1,57,718 beegas, 12 pds. are occupied in Enams, and 7,26,411 beegas, 7¼ pds. lie fallow, the remaining portion being taken up by waste and barren lands, amounting in the aggregate to 4,37,328 beegas, 19 pds.

The Koonbees call the dark soil kala muttee, and that remarkable white description only found in the neighbourhood of villages, pandree muttee; when calcareous matter is much mixed in the land it is termed choonkuda; if sand prevails, mulwut thamdee is the red soil formed by the breaking down of the ferruginous clay beds, and bulda when very stony, as is often the case along the foot of the hills.

The climate of the Circar derives its peculiarities from a combination of circumstances principally referable to its geographical position, prevailing winds, and the nature of its soil and substratum, all of which have their share in modifying the climate.

The elevation above the sea is sufficiently great to affect the temperature, the highest points being about 1,800 feet, and the lowest 1,000 above the sea. The ghats that stretch along the western coast interpose their lofty barriers to the current of the monsoon, causing but a partial fall upon the countries east of them; the quantity of rain that falls within the Circar varies from 20 to 40 inches: the last year's rains, which were considered more than usually heavy, were found to have been 44 inches, the particulars of which were noted at Aurungabad, the distribution of which was as follows:—

Inches.	Inches.
January	July 6.78
February	August 2.39
March	September 18.31
April 0.12	October 1.00
May 5.69	November 1.36
June 7.85	December

We are not in possession of any observations of the rain gauge that may have been taken on the higher parts of the district, but the fall must very far surpass that which is experienced on the lower levels, for floating clouds laden with moisture are constantly seen passing over the flat country towards the higher ranges to the north, on which they discharge themselves.

As the sun passes into the southern tropic the wind that generally prevails is from the north-east, lasting until its return again: bringing up the monsoon. During this period the leading feature of the air is its excessive dryness, increasing as the season advances, from the extensive heated surfaces it has passed over.

The face of the Circar being crossed by numerous high ranges, electrical conditions of the air are induced, which influence the currents of the atmosphere and produce at times sudden high winds.

The lowest range of temperature observed in the cold season was 46°, but it descends lower than this in localities favourable to the cooling effects of evaporation and radiation, as may be experienced in the vicinity of great masses of cultivation at night time. Late in the cold season it is by no means an uncommon circumstance to note a diurnal range in the temperature of 40° and upwards from this cause, the face of the country being then covered with cultivation. The highest temperature was in May, rising to 99° in the shade; upon the higher portions of the Circar the range is more confined, seldom sinking so low or rising so high as that now specified, but generally observing a more equable and moderate temperature. It has been supposed that frost is unknown in the Dukhun, but in the cold season of 1846 it caused great damage to the cane, poppy, tobacco, and wheat crops in many parts of the Circar.

In noticing the vegetable productions of the province it will be necessary to confine the investigation strictly to such plants whose peculiar qualities bear upon the necessities, conveniences, or gratifications of life, and for this purpose it will be convenient to consider them under the following arrangement:—

1. Plants valuable for food, as esculent grains of all descriptions, garden vegetables and fruit.
2. Plants used as food and fodder for domestic animals and cattle.
3. Plants useful for medicinal purposes.
4. Plants employed as materials in the arts and manufactures.
5. Plants of an ornamental nature.

1. *Plants valuable for Food.*

Esculent grains.—Gheeong, *triticum sativum*; bajree, *holcus spicatus*; jowarree, *holcus saccharatus*; chawul, *oryza sativa*; khundee, *andropogon punctatus*; mukkíe, *zea mays*; rallah, *panicum italicum*.

Leguminous plants.—Ooreed, *phaseolus maximus*; moong, *phaseolus trilobes*; muth, *phaseolus aconitifolius*; toor, *cytissus cajan*; mossoor, *ervum hirsutum*; kottee, *dolichos biflorans*; saim, *dolichos*; bun saim, *dolichos lablab*; mukhun saim, *dolichos gladiata* (white var.); runga mukhun saim, *dolichos gladiata*; (red var.); mutke, *dolichos fabaformis*; batana, *pisum sativum*.

Esculent roots.—Aloo, *solanum tuberosum*; salep, orchis; varkuchaloo, *helianthus tuberosus*; moolee, *raphanus sativus*; ghoraloo, *dioscorea alata*; pend aloo, *convolvulus batatus*; soorum, *arum campanulatum*; gajur, *daucus carota*.

Alliaceous plants.—Peeyaz, *allium cepa*; lussun, *allium sativum*; kheera, *cucumis sativus*; karkaroo, *cucurbita pepo*; kuddoo, *cucurbita lagenaria*; kurilla, *momordica charantia*.

Vegetables bearing fruit.—Brinjal, *solanum melongena*; wall wangee, *solanum lycopersicum*; meerchee, *capsicum frutescens*; baindee, *hibiscus esculentus*; singara, *trapa bispinosa*.

Pot herbs, &c.—Chooka, *rumex vesicarius*; myal ke bhajee, *basella rubra*; umbaree ke bhajee, *hibiscus cannabinus*; maytee, *trigonella foenumgræcum*; ghol ke bhajee, *portulaca oleracea*; soolfa ka bhajee, *anethum graveolens*; souf, *anethum fœniculum*; poodeena, *mentha viridis*; kotmeer, *coriandrum sativum*; udrak, *zingiber officinalis*; huldíe, *curcuma zerumbet*; ajouan, *ligusticum ajouan*; raie, *sinapis chinensis*; pawn, *piper betel*; bhang, *cannabis sativa*; kala toolsee, *ocimum basilicum*; the unripe legumes of the *hyperanthus moringa*, varieties of *bauhinia*, and *prosopis spriegera*, choolae, *amaranthus polygamus*, besides many other varieties of *amaranthus*, as well as every palatable and wholesome leaf, which comes not amiss to the poorer natives as a bhajee in their food.

Fruits, stone fruit.—Amb, *mangifera indica*; shuftaloo, *amygdalus persica*; jamoon, *calyptanthus jambolana*; bhair, *zizyphus jujuba*; aala, *phyllanthus emblica*; chironjee, *buchanania latifolia*.

Kernel Fruits.—Sceta-phul, *anona squamosa*; jamb, *psidium pyrifera*; anar, *punica granatum*; kuranda, *carissa carandas*; papaeaa, *carica papaya*; burocari, *cordia myxa*; jootai karoonda, *flacourtia sepiaria*.

Pulpy Fruits.—Unjeer, *ficus carica* ; khela, *musa sapientum* ; chuppul saynd, *cactus indicus*.

Bacciferous Fruits.—Ungoor, *vitis vinifera*, of which there are five varieties—hubshee, sybee, fukree, bokree, and bedane; toot, *morus indica* ; khirj, *fragaria* ; tuparee, *physalis peruviana* ; boimoong, *arachis hypogea* ; phulsa, *grewia asiatica*.

The Orange Tribe.—Nurangee, *citrus aurantia*, having three varieties, cintra or sungtra, kowla, and the bengalee ; a small species ; meetha neemboo, *citrus limetta* ; ambut neemboo, *citrus* var. ; weer, *citrus limona* ; chukotar, *citrus decumana*.

Cucurbitaceous Fruits.—Kurbooz, *cucumis melae* ; of these there are the following varieties :—jamb kurbooz, ghilkee kurbooz, burra masee kurbooz, toomree kurbooz, chuckerea kurbooz, and cowha purree kurbooz ; turbooz, *cucurbita citrulla*.

Hard-Shelled Fruits.—Kuthbel, *feronia elephantum* ; bel, *ægle marmelos* ; imlee, *tamarindus indica* ; rozelle, *hibiscus subdariffa*.

The above list of valuable vegetables and fruits are such as were generally met with ; the number could have been readily extended had the European gardens been explored, but, the object being to give only such as were indigenous to the soil, European vegetables have been purposely omitted, though all the varieties that are usually cultivated in India thrive most satisfactorily. The province has long enjoyed much celebrity for the delicious nature of its fruits, particularly its grapes, figs, and oranges. A favourable range of temperature, together with a rich premeable top-soil, a lower one not too retentive of moisture, and an abundant supply of water in flowing streams or close upon the surface, all conduce to the strength and vigour of vegetation. To diminish the injurious effects of the high winds often prevailing, it is customary to surround the gardens with a high hedge composed principally of the milk bush and other trees of a compact foliage, which oppose a screen to the force of the wind, and deprive it of much of its desiccating power. The variety of pot herbs, pungent aromatics, legumes and roots, with a few exceptions, receive little or no care in their culture, and may almost be considered as spontaneous productions.

2. *Plants used as food and fodder for domestic animals and cattle.*

There are several varieties of indigenous grasses that afford excellent fodder, the management of which is left entirely to Nature ; tracts of land situated upon the hills near Dowlatabad are set apart as rannals for the use of the cantonment of Aurungabad ; the better kinds of grasses of the hills are called by the natives the shaira poonea, marayel, koonda, and goondalee, but the most valuable of all is the hurriallee, which, with the seepree and kurreeyel, are common to the plains and rich valleys. In seasons of ordinary occurrence as much grass may be purchased for a rupee and a half as will provide fodder for a horse for a month, a bullock will eat about a rupee's worth, and a camel nearly twice that quantity, but in dry seasons cattle are hard pressed for fodder, and from the improvident habits of the ryots no provision for such a calamity is ever made, so that their cattle perish in consequence. Possibly guinea grass, if judiciously introduced, might be a valuable assistance, if its cultivation did not involve too great an expense. Lucerne is raised in gardens, but only in small quantities. The ryots generally feed their oxen upon the dry stalks of the jowarree and bajree, the nourishing quality of the former in particular keeping them in good working order ; to this is added green food afforded by green jowarree, bajree and mukkaï, leaves and tender tops of the sugarcane, and wall, a species of *dolichos*, &c. The trash from the sugar mills comes in as fodder to the oxen working at the mill, and the refuse of the kullees all goes to assist as food. Buffaloes find good pasturage upon the banks of the streams ; the *borrigo indica*, which is common on heavy lands, is greedily eaten by them, and, it is said, causes them to give down their milk freely. Camels find good grazing amongst the valleys, in the leaves of the peepul, banyan, umlee, neem, baubul, &c., but their general food is dry grass through half the year. The tanks and nullahs provide a plentiful supply of sedgy succulent plants for elephants, who are also assisted by the leaves of the peepul, banyan, cotton trees, *erythrina*s and *adansonias* ; the low jungles of *mimosa* supply food in

abundance for browsing goats, as their pods and seeds in dry seasons afford nourishing food. The number of sheep bred and kept is but inconsiderable.

3. *Plants useful for medicinal purposes.*

Abrus Precatorius, Gooneh. A succedaneum for liquorice.

Acacia arabica, Babool. Produces a valuable gum.

Acacia Catechu. Affords the astringent extract of catechu from the old wood.

Adansonia digitata. Its virtues are unknown to the natives, but in Africa and Egypt it is much used for medicinal purposes. It abounds in mucilage; the leaves dried and powdered are said to be serviceable in fevers and diarrhœas. The pulp of the fruit is subacid, and the juice mixed with sugar is valued as a specific in putrid fevers. The dried pulp is a remedy in Egypt for dysentery, and the leaves are eaten by the Africans in order to restrain excessive perspiration.

Ægle Marmelos, Bel. The pulp is considered to be specific in chronic diarrhœa; leaves, roots, and bark in decoction given in nervous complaints.

Andropogon Irasacusa, Khowsah, Grass Oil. A fragrant rubefacient.

Arachis hypogea, Boi-Moong, Earth Nut. A sweet oil is expressed from the nut, having the property of not turning rancid.

Areca Catechu, Foflee Sooparee, Betel Nut, Palm Nut. Narcotic and intoxicating: spurious catechu is prepared from it.

Argemone mexicana, Feringhee Datura, American Thistle. Juice of the plant powerfully alterative and detersive: used in cutaneous and eye disorders.

Aristolochia bracteata, Keeramar, Birthwort. A few drops of its intensely bitter juice squeezed into wounds kills worms, hence its native name; dried leaves are anthelmintic; the fresh leaves are given for purging with gripes.

Asclepias gigantea, Mudar, Gigantic Swallow-wort. This plant abounds in an acrid milky juice, which with the plant itself is employed in the treatment of all descriptions of nervous diseases by the natives. It has been also successfully used by the faculty in the cure of leprosy, lues, tenia, herpes, dropsy, rheumatism, hectic and intermittent fevers, given in doses of five grains of the powdered bark twice a day, the nausea or vomiting it may create being removed by a purgative of castor oil. The active properties of this drug are found in the presence of a singular substance termed mudarine, having the property of coagulating by heat and becoming again liquid on exposure to cold.

Asclepias acida, Sour Swallow-wort. Its milky acid juice allays excessive thirst.

Asclepias pesendosarsa, Indian Sarsaparilla. Very generally employed in India by surgeons as a substitute for sarsaparilla. Professor Lindley informs us that large quantities are now consumed in London as a fine kind of sarsaparilla, and is inclined to believe that the smilasperic acid of Mr. Garden is obtained from this species.

Bergera Konigii, Kari pak. Decoction of leaves given in dysentery; the bruised bark, root and leaves applied as stimulants.

Boswellia glabra, Salai. Affords the gum olibanum.

Buchanania latifolia. Kernels of the nut afford a bland oil.

Butea frondosa, Palas. Seeds are said to be anthelmintic.

Cardiospermum Halicacabum, Balloon Vine. Root and leaves aperient.

Carica Papaya, Pupaea. The unripe fruit is eaten as a vermifuge.

Carthamus tinctorius, Koosumba, Safflower. Seeds laxative; the oil applied to ulcers.

Cassia auriculata, Turwar. The seeds reduced to powder and blown into the eye a favourite remedy with the natives for country sore eye.

Cassia fistula, Umultas. Pulp of the pod, and decoction of leaves, laxative.

Cedrela Toona. Bark in decoction given in fever and bowel complaints.

Celastrus paniculata, Malkamnee. An empyreumatic oil is expressed from the seeds, of an acrid burning quality, and useful as a rubefacient. It has been employed successfully in beriberi.

Cissus pedata, Gwaliya. Bruised root is applied to strains.

Cæsalpinia Bonducella, Kat Kuleja. Seeds tonic, leaves particularly useful as a poultice to hernia humoralis.

Cleome viscosa, Dogs' Mustard. Seeds hot : administered as an anthelmintic and carminative.

Clitoria ternatea. Root is emetic ; seeds anthelmintic and purgative.

Chlerodendron Phlomordes. Juice of the leaves alterative.

Cordia Myxa, Bhokur. The Sebesten tree. The mucilaginous berry when dried is the sebestena of the materia medica. Its properties are gently laxative and demulcent, and given in form of decoction in certain pulmonary complaints.

Croton polyandra, Jumalgota. The seeds employed as a drastic purgative.

Cucumis Colocynthis, Indrayun. Powerfully drastic.

Curcuma longa, Huldee. A favourite application of the natives to recent bruises and wounds. In Java it is smeared over the body in the shape of an ointment, to guard against cutaneous diseases.

Convolvulus Turpelhuni. Root purgative.

Dalbergia oojeinensis. Bark astringent, and used as a cattle medicine in bowel complaints.

Dalbergia arborea, Kurrunjee. Juice of the fresh root is detergent. Oil, expressed from the seed, externally applied as a rubefacient.

Datura fastuosa,
Datura alba, } Virulently poisonous and narcotic.

Euphorbia ligularia, Munsa Shij. Root valuable, mixed with pepper, in snake remedies.

Euphorbia Tiraculli. Common milk hedge. The fresh juice employed as a vesicatory by the natives. A decoction of the root is carminative ; the acrid juice, mixed with butter, is purgative.

Evolvulus alsinoides. Decoction of the plant useful in bowel complaints.

Feronia elephantum. Wood-apple. Gum is demulcent in bowel complaints ; leaves stomachic and carminative.

Gentiana verticillata. Tonic and stomachic. An extract is formed from this plant every way equal to that made from the officinal gentian.

Hedysarum sennoides. Root tonic, and externally applied in rheumatism.

Herpestris monniera. Juice used as an external application in rheumatism.

Hibiscus populneus. Decoction of the bark alterative.

Hyperanthera Moringa. Horse-radish tree. The green root administered in fevers, and applied in a fresh state as a stimulant. An oil expressed from the seeds eases pains of the joints in rheumatism.

Jatropha Curcas, Erundee. Nut purgative : juice of the fresh plant detergent.

Justicia Echoluim [?]. Leaf and root tonic and antispasmodic.

Justicia paniculata, Creyat. A very valuable bitter.

Linum usitatissimum. Seeds discutient.

Melia Aazdirachta. An oil is expressed from the seeds, useful for expelling worms and cleansing foul ulcers ; it is also applied as a rubefacient in rheumatism. Decoction of the leaves a favourite discutient with natives.

Melia Azadirachta. Root bitter. Anthelmintic.

Mentha sativa, Poodeena. Infusion of mint a favourite remedy in dyspepsia.

Mimosa ferruginea. A wash for scorbutic gums is made from a decoction of the bark.

Minusops Elengi. Water distilled from the flowers is considered useful in melancholia.

Mirabilis Jalapa. Root purgative.

Monetia barleroides. Juice of the leaf bitter and expectorant.

Morus indica. Fruit gently laxative.

Nerium odoratum. Bark repellent ; root taken internally poisonous.

Nerium antidysentericum. A valuable tonic ; the true conessi bark is afforded by this tree, but the difficulty in procuring the genuine species has brought

the drug into undeserved disrepute. The natives deem it a specific in dysentery and bowel complaints.

Nicotianum Tabacum, Tumbako, Tobacco.

Ocymum sanctum. Expressed juice assists in the cure of ringworm.

Cordia Wodier. Powdered bark mixed with oil is applied to indolent ulcers.

Pandanus Odoratissimus. The immature fruit is reputed emmenagogue.

Papaver somniferum. The juice expressed from the seeds is considered useful in chronic diarrhæa, and their oil very bland and pure, fitting it for culinary purposes.

Phyllanthus Emblica, Myrobolan. Yields a nut of a harsh bitter taste, striking a black colour with solutions of iron, said to be gently purgative, astringent and corroborating.

Plumbago zeylanica. Root in decoction is administered in fevers; the fresh bark bruised and applied to the skin vesicates.

Portulaca quadrifida. Diuretic. The bruised leaves are applied in erysipelas.

Punica granatum. Pulp cooling and aperient. The rind of the fruit is very astringent, and useful in diseases where this virtue is required. It is given to destroy worms.

Ricinus communis. The castor oil of commerce is generally procured from the seeds of the smaller variety. A valuable purgative in cattle medicines is found in the root; a piece the size of a nutmeg mixed with chillies and tobacco leaves is a successful remedy in gripes.

Rumex vesicarius. Useful as an antiscorbutic.

Saccharum officinarum. The juice of the sugarcane is considered to be the best antidote to arsenic.

Sapindus detergens, Rhete, Soap Nut. Possesses singular and specific powers in chlorosis; the shell of the nut powdered and snuffed up the nostrils is powerfully errhine, the natives employ it in cephalic affections; with water the nut forms a copious lather, similar to soap, for which it is an excellent succedaneum.

Semecarpus anacardium, Bilowa, Marking Nut. The acrid juice of the nut is given internally as an alterative and anthelmintic, and the expressed oil is useful as a vesicatory, but great caution should be employed, for very distressing erythematic œdema sometimes supervenes upon its application. The fumes of the burning wood even have been known to produce this to a very severe degree, the face assuming a shapeless mass from the diffused swelling occasioned. Some constitutions are so susceptible of its deleterious influence that even remaining under the shade of the tree causes œdematous swelling and eruptions. The native remedy in these cases is merely to rub the swollen parts with the inner pulp of the coconut bruised.

Sesamum indicum. Leaves emollient; seeds contain a fixed oil, very sweet and pure.

Solanum rubrum. The whole plant is supposed to possess powerful diuretic virtues.

Solanum trilobatum. The plant is considered tonic and carminative, flowers as well as roots, leaves, and stalks being used.

Sterculia urens. Bark abounds in mucilage, which is in some respects like tragacanth.

Swietenia febrifuga, Rohuna. Is a powerful tonic, and useful in the cure of intermittent fevers.

Tamarindus indica. Pulp is slightly aperient; the kernels reduced to powder and formed into a paste have the power of promoting suppuration in indolent tumours.

Terminalis bellerica, Belleric Myrobolan. Astringent.

Tribulus terrestris. Leaves and root diuretic.

Vitex trifoliata. Leaves repellent in rheumatism; seeds are said to have nervine, cephalic, and emmenagogue virtues.

Zingiber officinale. Root employed as a valuable stomachic.

4. *Plants employed as materials in the Arts and Manufactures.*

Plants cultivated for oil are the *carthamus tinctorius*, kuldie, safflower ; *sesamum orientale*, tillee ; *ricinus communis*, castor oil ; *linum usitatissimum*, linseed ; *kurleh*, *verbena sativa*. Those spontaneously produced are the kurrunj oil, expressed from the seeds of the *dalbergia arborea* ; malkumnee oil, from the seeds of the *celastrus paniculata* ; and grass oil, commonly termed rowsah oil, from the *andropogon irasacusa*.

A variety of gummiferous trees are found upon the hilly portions of the Circar, the principal of which are the *acacia arabica* ; *feronia elephantum* ; *conocarpus latifolia* ; *boswellia glabra* ; neem ; *sterculia urens* ; *butea frondosa* ; *buchanania latifolia* ; *bombax gossypium* ; *cedrela toona*, &c., the whole of which are more or less adapted for economic purposes.

Grislea tomentosa, *rottilera tinctoria*, *morinda citrifolia*, *bixa orellana*, *nyctanthes tristis* ; *butea frondosa* ; *tamarindus indica* ; *hibiscus populneus* ; *dalbergia oojenensis* ; *curcuma longa* ; *terminalis bellerica* ; *phyllanthus emblica* ; *punica granatum*, &c.

Several plants are found that possess high powers of preparing leather, by the amount of extractive matter they contain, in addition to their tannin, which makes the skins peculiarly soft and durable ; of these there are one or two varieties of the *acacia*, the principal being the *baubul* ; *dalbergia oojenensis* ; *conocarpus latifolia* ; *terminalia alata* ; *cassia auriculata*, and *phyllanthus emblica*.

Acacia arabica and other hard-grained species of *mimosa* are used by the natives to burn into charcoal for common purposes, but that manufactured for gunpowder and fireworks is procured from the stems and roots of the *asclepias gigantea* and *euphorbia tiraculli*.

The *canabis sativa*, ganja, and *hibiscus cannabinus*, ambaree, are cultivated for the sake of their fibrous stalks, being converted into hemp ; the bark peeled from the roots of the *butea frondosa* constitutes the usual rural cordage.

5. *Ornamental Plants.*

Trees possessing the greatest claims to an ornamental character are the following :—Two or three species of *acacia*, of which the *rain kanta* is an elegant instance ; *cordia myxa* ; *chlerodendron* ; *melia calyptanthos* ; *carissa* ; *parkinsonia* ; *mimusops elengi*, and *mimusops hexandra*, both of which the Mahomedans, with much taste, were in the habit of planting about their burial places, in company with the *poinciana pulcherrima* and *annona squamosa*. Around Anrungalabad are to be seen several magnificent specimens of the *adansonia digitata*, a legacy in all probability from the Abyssinian founder. Upon the undulating knolls between the valleys the most striking in beauty are the *grislea*, *pavetta*, *prosopis*, *flacourtia*, *baubinia*, *cleinatis*, *combretum*, *celastrus*, climbing *solanum*, *butea*, numerous kinds of *asclepiaceae* and *mimosa*. The most conspicuous within the ravines are the *sterculia urens*, *dalbergia oojenensis*, *bignonia*, *erythrina*, *santalum*, *grislea*, *boswellia* ; one or two varieties of *bombacea*, *phyllanthus*, *nerium*, *gardenia*, *grewia*, *gmellina*, *conocarpus*, *bambusa*, *figs*, *tectona grandis*, and *cedrela toona* : the specimens of the latter have evidently been planted. The more lowly forest vegetation that claims a passing notice under this head is the *gloriosa superba*, *capparis*, *ajuga spermadietyon*, *evolvulus hirsuta*, *gentiana verticillata*, *justicia*, *lavandula burni*, *plumbago*, *loranthus*, *nerium odoratum*, *oxalis*, and *tamarisk*. Before closing these remarks I would observe that the size of the trees increase as the country rises towards the north, amongst the rich valleys of which very noble specimens of the forest may be seen, as instances of which I may mention having measured at Nangapoor the stem of a *butea frondosa*, usually met with as a lowly-growing shrub, here expanding into a girth of thirteen feet and a half, with proportionate height of upwards of sixty feet ; the stems of the milk bushes measured three feet round.

At Tajnapoor a melia azidarachta was thirty-five feet round the butt, and eighty feet high ; and at Padree a venerable tamarind tree, supposed by the villagers to be three hundred years old, is seventy-four feet high and thirty-six in circumference.

Mode of Cultivation.

Such is the remarkable social condition of the natives of India that it is by no means improbable the state of agriculture witnessed now-a-days was pretty much the same as practised at very remote periods ; a polity like theirs, which condemns the great body of the people to a hopeless state of degradation, confining their enjoyments of life to the very lowest minimum of all things needful and necessary, must tend as a matter of course to repress every desire for improvement in the benefits of which they would not be allowed to participate. If to this cause be not attributed the low state that we find agriculture languishing under, it will be difficult to seek elsewhere for more sufficient reasons. The (Koonbees) cultivators are, generally speaking, an inoffensive, temperate, and, all things considered, a hard-working class ; by no means deficient in intelligence, and well acquainted with the leading principles of Indian agriculture. The knowledge of the past has served them for their guide, handed down from the remotest period by father to son. In their modes of culture we perceive their full acquaintance with the principle on which the succession of crops is founded, and from time out of mind have they been adopting drill husbandry practice, only commenced in Europe the middle of the last century. Reasoning upon these two facts alone, we cannot but accord to the Koonbees a far higher degree of excellence than what, from their present unsatisfactory condition, we might feel at first disposed to allow, and which under any other state of society would have raised the art of agriculture to the same degree of importance it has assumed in other countries exempted from such evils as subject the cultivator to perpetual poverty.

The mode of culture is as simple in its operations as it well can be, the particulars of which we will now consider. Beginning

Enclosures.

with the enclosures, we find a great deficiency in their protection, and rarely to be met with elsewhere than around sugarcane, or pân gardens, for the scanty supply of dry thorns stuck round growing crops in the vicinity of public highways hardly deserves the name. Hedges are more commonly met with on the higher parts of the Circar than on the low lands, consisting generally of the euphorbia tiraculli, carissa, baubul, jatrophia, flacourtia, cæsalpinia and chlerodendron. The cultivation, for the most part lying unprotected, is at the mercy of stray cattle and innumerable herds of deer : they attempt to scare the latter away by earthenware pots white-washed, and distributed about the fields on poles ; or stakes are driven in the ground around the skirts of cultivation to which loose-twisted grass ropes are attached : these the deer instinctively avoid as snares.

Boundaries are marked by slabs of rough stones, trees, or a broad stripe of

Boundaries.

land left unploughed. I am told it was an ancient custom in this part of the country to place charcoal at the cardinal points under large stone pillars or unhewn blocks ; these were called "soor suma," and held in especial regard, the removal of which would be considered a heinous misdemeanour. Boundaries are often now the subject of angry disputes from their undefined limits. Every field originally had a name, in accordance with these old boundaries ; where the marks have disappeared new ones are given.

The farm yard or kullee is an enclosed space of ground outside the village.

Farm Yard or Kullee.

Here the grain is stored up as brought in from the fieds, and the usual allotments made. The grain is cleared from the husk by driving cattle over it, though differing in one respect from the ancient mode of beating out the corn, by muzzling the cattle employed. Winnowing is managed by holding a basket of grain at arm's length over the head, and allowing the wind to scatter the chaff as it is slowly poured upon the ground. In storing grain for the current year's supply it is usual to place it in a wicker basket called a "kungee," about six feet in height, the bottom and sides of

Kungee or Grain Stone Basket.

which are protected from insects by a coating of cows' dung, and a chupper over the top to preserve it from the weather, it generally standing outside the house. These baskets hold from five to fifteen maunds. When the grain is to be stored up in any quantity for long periods, underground vaults are prepared, called "pews," where it will remain in good preservation for several years; these receptacles vary in dimensions according to circumstances, holding from 120 to 225 maunds.

The ground they are formed in is either the pandree muttee or soft morrhum. The first step in their construction is to sink a small shaft about the height of a man, and in which he can conveniently turn round; a circular opening is then dug in the bottom sufficiently large to admit a man to pass, and the ground excavated into a vaulted chamber. No further precautions are taken with the preservation of the grain than to line the sides with stalks of kurbee, and close the orifice of the vault by a round flat stone, in shape similar to the common chukkee; the shaft is then filled up, and the surface smoothed down. It is a very remarkable circumstance that the intense heat the grain is subjected to in this confined state does not deteriorate its quality, it being dug out uninjured after so long a lapse of time as even twenty years: the heat engendered is so great as to prevent a man descending at once into the pew when first open, and it takes a day or two to cool before he can conveniently enter the place: to this circumstance is referred its not being infested with insects.

The rude appearance of the implements of husbandry is strictly in unison with its simple character, raising our opinion of the Koonbees by the ingenuity and patient perseverance they evince in their successful attempts to supply the place of more elaborate contrivances, which after all are not adapted for India, where the cost of labour; comparatively speaking, is so trifling--the great desideratum in this respect being not to supply an expensive or complicated machinery, but simply to facilitate the operations of the field by improving such as are already found in use. What these implements are we will now proceed to examine.

The plough or nangur is very primeval in appearance, possessing neither coulter nor mould board. The instrument is a crooked log of wood, cut from the babul tree, bending nearly at right angles and wedge-shaped. The point that turns up the soil, or share, has an iron shoe, or in some instances an iron bar, fastened on the upper portion projecting slightly over the fore part, and fastened at the back into the body of the plough, the whole kept secure by an iron hoop that slides over all; to the upright body the beam is attached that draws it, and the stilt or handle to guide its movements is fastened in a perpendicular manner at the back part. The breadth of the hinder part of the wedge-shaped log performs very imperfectly the offices of a mould board. The yoke, which is always clumsy and unnecessarily heavy, is attached to the beam by means of a long loop rove through a moveable wooden collar or block that is placed beneath the beam; the loop passing over the yoke regulates the angle of the beam, by being pulled tightly or loosely, according to circumstances, a rope being fastened to the body of the plough for this purpose, which leads through a ring attached to the loop. In heavy lands four oxen are required to work, in the lighter ones but two. The share penetrates the soil to the depth of from nine to twelve inches. The whole machine costs about two rupees. It is not improbable but the form of the Indian plough is far better adapted for the country in general than any now in use in Europe. It performs very effectually the object required, which is not so much to raise a new soil to the surface, possibly of a crude and injurious nature, as to expose the surface itself to the action of the air, which with the assistance of the bukkur or bullock hoe it very thoroughly effects.

The bullock hoe or bukkur is a most important instrument in Indian husbandry, and serviceable both for stirring the top soil and cutting up the weeds. It has a board blade of iron fixed obliquely into a log of babul wood about three feet long with a handle rising

straight up. In stiff soils it requires two pair of bullocks to work it, cutting through the roots of weeds to the depth of three or four inches below the surface.

There is another species of bullock hoe differing from the bukkur by having two blades instead of one and of smaller dimensions. It is called the "dowra," and is an instrument well adapted for weeding drilled crops and earthing up young plants.

The drill plough or "charra" has been in use from very early periods, and being particularly well adapted for the soil is generally employed, admitting of the dowra to destroy the weeds very readily, as well as to loosen the earth between the rows. This implement consists of a bowl-like receptacle for receiving the seed, into which the hollow bamboos are inserted for conveying the seed into the furrows, which are made by three small shares attached to the body of the instrument, behind which the opening of each several bamboo is placed. The value of such an instrument varies from 2 to 3 rupees.

The carts are very awkward and unwieldy machines, particularly those in use about hilly districts; axle-trees are made of wood, and the wheels of the hill carts are generally wooden discs encircled by a rim of iron. The body is a solid piece of timber of the breadth of the cart, and rests upon the axle-trees, which are attached to it by two wooden pins. Upon this two long pieces of timber extend horizontally, situated in the centre, and not very far apart, supporting the framework of the machine, which is square: two poles having their ends passed through the body and pinned are lashed together, and form the beam to which the bullocks are attached. A cart is able to carry thirty maunds, and costs about forty rupees.

Two or three implements are employed for digging and rooting up old trees, these are the kudalee and powrah. The kudalee is a small pickaxe, differing from the European one in only having one pick; its value is about 12 annas.

The powrah or digging hoe is a blade of iron attached to a wooden handle at a very considerable angle. Of these instruments there are two forms in general use—one in which the blade approaches a wedge-like form, the angle of union with the handle being very acute: in such a case the lever has its fulcrum thrown too close to the force applied, and much of its efficiency as a digging instrument rendered nugatory; in the other form, which is the one most commonly met with, the blade is square, and placed on the handle at a smaller angle, throwing the fulcrum further from the hand towards the resistance. Their cost is about 12 annas.

The sickle or durantee is employed for cutting grain and grass it is of a semicircular shape; a line drawn from heel to point varies from seven to nine inches; average price 4 annas.

The weeding hand hoe, or koorpue, is a small implement, used for weeding, being a narrow iron blade, fixed in a wooden handle, the point of which is slightly falcated, and costs about 1 anna.

Manures.

The natural fertility of the soil of India has occasioned a neglect of the important subject of manures. In these districts its chemical constitution exhibits a rich amount of inorganic salts, the various qualities of which are essentially requisite, in obedience to a fixed law of vegetable organism, for the perfect development of the several parts of the plant. It is in trap soils that we may look for a bountiful supply of aliment for the vegetable world, the amount varying with local circumstances, but even when so small as to afford but a single grain in each pound of soil a foot deep it still is equal to lbs. 500 in an acre. Flooding the country during the rains spreads far and wide the soluble salts of the wasting rocks, hence, the remarkable fertility of certain trap soils, which are said to possess the power of raising wheat, the most exhausting crop that grows, for thirty years without a fallow, recruiting its last energies by the restoration of these salts

during the rains ; and in some countries, I believe in the Azores, the most luxuriant crops are raised with no other manure than that afforded by pounded trap rocks strewn over the land. These rocks, if examined into, will be found to produce abundant materials for a soil when reduced by the action of the air. For instance in felspar we shall obtain potash, alumina, silica and lime ; in hornblende, magnesia and iron ; the zeolitic minerals are composed of silica, alumina, lime, soda and iron ; and in chalcedony, silica and alumina ; whilst in quartz we find silica in a pure state, and in jasper mixed with iron. Here there are materials for a soil highly favourable to vegetable life, which are brought into active operation by the rains, and unlike the evanescent character of soils enriched solely by vegetable matter, are permanent in effect. The usual practice is not to manure any crops but sugarcane, poppy, and pân ; the source from whence this is derived is the village midden, and occasionally folding cattle. A very valuable manure for cane lands lies totally neglected in the heaps of cane ashes beside the sugar mill, and are not deemed sufficiently worth returning again upon the land, which were it done, abounding as they do in silicates, could not but prove highly useful to the plant, which, it is well known, particularly needs these supplies. Green manures are occasionally applied to worn-out soils. The green stalks and leaves of the tobacco plant are always ploughed into the land after the crop is pulled. Nothing can be more injurious and unfair towards the soil than the pernicious custom of converting the excrement of the cow into fuel.

The cultivator divides the year into three seasons. The *toossûr*, when green crops ripen in the rains ; the *khureef*, ripening in October ; and the *rubbee*, ripening in February. He commences his year with *Chytra Shood* in April, and at the *Dewallee* considers the rainy months over and the dry season commenced. The *Koonbee* is well acquainted with the important fact that crops of opposite natures succeed each other with better success than such as are of similar kinds, and has long put the principle in force. Oil plants, as *kuldee* or *karleh*, are generally first sown, and then followed by wheat, *jowarree* or *bajree*. The Indian mode of mixing cleaning [?] and exhausting crops together is an excellent system. For instance *jowarree* is generally sown with *moong* and *umbarree* ; *bajree* with *kooltee*, *ralla*, *mut*, *moong*, *umbarree*, and *toor* ; and wheat with *kuldee* and mustard. Thus the several grains and pulses of different natural families do not interfere with each other's welfare—a fact attempted to be accounted for by modern cultivators in the supposition that in mixed cultivation, where plants are associated of various natural families, each particular kind derives dissimilar inorganic matter from the earth for its own particular nutrition, that which is rejected by one sort being appropriated by another.

Staple Vegetable Products.

The principal staple vegetable productions are wheat, *bajree*, *jowarree*, *chenna*, sugar, tobacco, rice, *toor*, *kuldee* and hemp.

The land best adapted for wheat is the rich loamy soil of the plains, where it requires no irrigation, unless in great droughts. The varieties grown are the *bunsee*, *poteah* and *kuteah*, the first named being the finest kind, but it needs irrigation, and is therefore less generally cultivated than the last, which is raised in vast quantities, particularly in the districts of *Phoolmurree*, *Gandapoor*, and *Untoor*. *Bunsee*, which is a black bearded variety, is grown in some places on the higher lands, but gives place to sugarcane, which is there found a more remunerative crop.

The outturn of all dry crops in 1846 was very short and scanty, in consequence of the little rain that fell, and, what was worse, having been preceded by three remarkably dry seasons. The quantity of land under wheat cultivation in that year was 89,094 beegas 15 punds, producing 32,008 pullas 30 seers, the net value of which at the average price of 7 rs. 1 a. 1 p. per pulla, gives 2,26,230 rs. 6 as. 9 p., a price double that of usual years. So light were the crops that the return did not average beyond 43 seers per beega, or something less than a bushel and a half ; the bushel being calculated at 6½ lb., this would give

nearly three bushels to the acre. In the north of India corn lands return from 16 to 44 bushels per acre,* the average return in England being 27 bushels.

The fields intended for wheat are left quiet during the rains, then ploughed up once and the bukkur passed and repassed twice to pulverize the soil for the reception of seed, which is put in with the drill plough in the proportion of ten seers of bunsee, or five seers of kuteah, to the beega, ripening at the end of February; kuldee is sometimes sown broadcast amongst the crop, but more frequently drilled in at every sixth or seven furrow. Numerous broad shallow watercourses are scattered about the field for the purpose of well flooding the land preparatory to sowing, as well as for watering the standing crop in times of drought. The crop is twice weeded and reaped by the sickle. It is allowed to stand too long after it has ripened, a practice which must injure its farinaceous qualities for many economical purposes, by converting its starchy properties to woody fibre, as for instance in the preparation of an article of diet called "saviya," a species of vermicelli, where the bunsee variety is chosen, because it possesses a larger percentage of gluten. The way it is made is by soaking wheat in water and then rubbing the husk off in a cloth; after this it is dried, ground, and finally sifted; what does not pass the sieve is called "soojee" or "rolong;" the fine flour sifted through is kneaded into dough with a small quantity of salt, in the proportions of a quarter of a seer to five seers of flour; the whole is then well levigated with a wooden bat for three hours, when, having been sufficiently worked, it is rolled with the hands upon a board into thread-like forms, occasionally moistening the palms with ghee to facilitate the operation.

Bajree is grown largely in Gundapoor, Phoolmurree, Byzapoor, Untoor, Wallooj and Hursool, the amount in the Circar altogether being 1,97,923 beegas 18 pds., producing 59,772 pullas 2 maunds 10 seers, which at the average of 4 rs. 13 as. 1 p. per pulla gives a net return of 2,87,996 rs. 9 as. 1 p. This crop does not require the best descriptions of soils, but frequently is found on them as a khureef crop, being occupied by cultivation of different kinds in the rubbee season. It forms the principal article of food for the population and their cattle. The seed is sown generally during the middle of the rains, sometimes alone, or mixed, and is ready to be cut in five months. The Koonbees are busily employed in the hot season preparing their land intended for rain crops, and after the first falls work it with the bukkur backwards, forwards, and diagonally, collecting old stumps, roots and stubble in heaps and burning on the land, to be mixed in with the soil by the bukkur; no manure is given; the crop is weeded once by the small bullock hoe. The amount of seed required for one beega is two seers.

Jowarree is not so extensively cultivated as bajree; it is principally found upon the low undulating plains of Wallooj, Gundapoor, and Byzapoor; there are two varieties cultivated—the smaller or red kind in June, and the larger or white kind in October.

The culture is similar to that adapted for bajree. The total amount of land thus occupied is 1,42,069 beegas 18½ pds., returning 40,997 p., which is valued at 1,89,272 rs. 14 as. 8 p. taking the average price of a pulla at 4 rs. 9 as. 1 p.

This article is raised in large quantities in Gundapoor, Phoolmurree, and Untoor. The quantity of land thus employed in the Circar is 40,139 beegas 15 pds., giving an outturn of 13,798 puls. 1 md. 3 srs., realizing 94,130 rs. 6 as. 3 p. at the average rate of 6 rs. 14 as. 3 p. per pulla.

This cultivation is carried on in every purgunna of the Circar, but more particularly in those of Phoolmurree, Taklee, Untoor, and Sultanpoor; upon the low plains between Byzapoor and Aurangabad there is comparatively but little save at Dowlutabad and Hursool; that grown in the Sultanpoor and Phoolmurree purgunnas is considered to be of first rate quality: the land there contains lime and iron in a state of peroxide, and

is so situated as to command an ample supply of water for irrigation. Great care is bestowed upon the soil in preparing it for the crop, which is only grown once on the same ground every two, three, or four years, according to the quality of land. The field is commenced preparing in November by ploughing up the soil no less than nine times, and manuring plentifully. Early in February the planting begins, which is done by taking cuttings from the old plant near the top, each cutting being about a foot and a half in length, which will include two or three internodary joints; the field having been prepared by the plough, either into small plots or deep furrows about 18 inches asunder, is well flooded so as to form the trenches into soft muddy beds; the labourer casts the cuttings singly down before him lengthways, as he walks along the trench, allowing a space of but two or three fingers' breadth to intervene between each cutting, and as he progresses, he presses the cutting into the soft bed with his foot; the field is now daily flooded until the shoots have risen about six inches above the soil, when water is restricted to every fourth or fifth day, which must be continued until the rains set in and after they have ceased or the cane be ripe to cut, which takes place just immediately prior to its coming into flower, a period of about twelve months from its being first planted. The crop has to be weeded about four or five times, and in the rains, when all vegetation gets rank, two or three plants are bound together by their lower leaves, for support to each other in high winds. There are two varieties of cane grown, the red and white sorts. The former is called "Domeah," the latter "Kurree." The domeah is the kind generally seen; it requires more manure than the other variety, yields a richer and more abundant extract, and from its drier nature is better adapted to stand the climate found upon the high lands. They are, however, both generally to be found growing together in the same plantation, on account of the red kind sometimes spoiling by excessive cold in the early part of the year, which does not in the same degree affect the white variety.

Upon an average, a beega of good sugarcane land yields from four to seven pullas of rub, or pot extract. Further consideration of this subject will be deferred till we come to treat upon the manufactures of the Circar.

No very fine varieties are raised: it is more cultivated in Byzapoor and Phoolmurree than elsewhere, preferring a rich reddish-brown soil in these localities; at other places it is seen on the outskirts of villages, providing the "Forica" for the inhabitants. The land is little dressed for this crop, the surface soil only being once moved by the bukkur, previously to the young plants being planted; it requires one weeding, and as it is coming into flower the tops of the plants are nipped off, which causes the leaf to be of better quality; a species of cricket is apt to destroy the tender plants and the growing crop is much injured by a pernicious parasite infesting its roots, called the *Orobanche indica*.

There are 2,122 beegas 16 pds. under cultivation, producing 564 puls. 1 md. 30 srs., and yielding a return of Rs. 6,236-13-3 at the rate of 11 rs. 0 as. 9 p. per pulla.

The weed is prepared for market as follows:—the matured leaves are plucked, and spread out in layers in long beds upon the ground, where they remain for ten or twelve days, after which they are turned over, and continue so exposed for another like period, when they receive on the last day a plentiful sprinkling of water administered morning, noon and evening; before the sun rises the following morning they are all gathered up and piled in heaps, having heavy weights placed above to flatten them down, and in this condition they are allowed to ferment for four and five days, when the weights are removed and the heaps opened; the leaves are then freed of their stalks, and smoothed into bundles weighing from two to four seers each. The class of people who follow this business are generally bearers.

This grain is very sparingly cultivated in all the districts, and, generally speaking, is of a coarse and large description, reckoned extremely indigestible by the natives; an exception, however, occurs to this in the kind grown at Aurungabad, which is fine and small, and considered of a very superior description. This cultivation is mostly found in the

Tobacco.

Rice.

largest quantities at Untoor, Saitoonda, Phoolmurree and Koottabad. It is planted out in beds during the rains, which are flooded every eight or ten days, the land having previously been prepared by ploughing and manuring, fifteen cart loads of manure being given to every beega. It requires weeding three times whilst the crop is growing, and is ripe in six months. It requires ten or eleven seers to sow a beega.

Rice lands occupy 4,149 beegas 9 pds., and return a produce of 2,160 puls. 1 md. 5 srs., yielding 10,044 rs. 6 as. 4 p. at the average rate, 4 rs. 10 as. 4½ p. per pulla.

This grain is generally sown as a mixed crop, though not invariably so; on this account there will arise some difficulty in assigning to this and all mixed crops the correct amount of land occupied.

Toor.

It is necessary to mention this circumstance as the district officers forward to me their statements of the produce as though they were unmixed crops, and they are therefore given by me according to their calculation. In Walloog and Gandapoor this very useful pulse is raised in rather large quantities, the soil being there well adapted for its culture, being light and rich.

There are 19,113 beegas 13 pds. of this cultivation, producing 5,009 puls. 1 md. 10 srs., and yielding 23,672 rs. 12 as. 3 p. rating the average price of one pulla at 4 rs. 11 as. 7 p.

Kuldee, Carthamus
tinctorius.

Much of this is grown, and very frequently as a mixed crop; it succeeds well in the rich soils of Phoolmurree, Untoor, and Gundapoor, where it is extensively cultivated.

There are 18,648 beegas 14½ pds. occupied with this plant, the produce of which is 6,602 puls. 0 mds. 24 srs., whose value is 22,294 rs. at the average rate of 3 rs. 6 p. per pulla.

Little of this is grown as an article of export, excepting at Phoolmurree, in many places only cultivating sufficient for the wants of the district.

Hemp.

There are 3,457 beegas under cultivation, producing 1,045 puls. 2 mds. 20 srs., the value of which is 7,045 rs. 7 as. 5 p. at the rate of 6 rs. 11 as. 8½ p. per pulla.

The above are the principal staple productions. In closing this part of the inquiry, I will briefly notice one or two articles which are not of sufficient note to be thus rated.

There are 936 beegas 12½ pds. employed for raising this article, the produce of which is 11 puls. 2 mds. 13 srs., yielding 8,621 rs. 2 as. 11p. as its value, rating the seer at 6-2-3½. It is grown in the

Opium.

largest quantity at Untoor and Phoolmurree.

The poppy requires the richest sort of land and constant irrigation. It is planted towards the close of the rains, and comes to perfection in four or five months, during which period it receives the unceasing attention of the ryot. The sites for its production will generally be found in the valleys where running streams abound, as well as richer and deeper soils. The same system of preparing the land is adopted as that observed for sugarcane. The land is either divided into furrows or small plots, and sown and watered once in four days for the first fortnight; from that time till it flowers which it does in another six weeks, it is watered but once a week, and after flowering, only once in eight days. After the plants have sprung up they are thinned out, leaving a hand's breadth between each, and are well weeded once a month. In about three or four months' time the capsule will have reached the most favourable period of yielding its juice, and on the falling off of its petals the operation of wounding them is commenced, which is effected by a three-pronged sharp-pointed instrument whose points cannot pass beyond a certain depth, and just sufficient to penetrate its outer covering; the incisions are made longitudinally, and in the heat of the day; during the night juice exudes, which is removed on the following morning with, blunt iron scraper, and put into a small shallow brass saucer; the scraper, as well as the thumb and finger, are occasionally rubbed with linseed oil to prevent the gummy juice from adhering. Each day's gathering is thrown into a common receptacle, where it is well saturated with linseed oil, to prevent its evaporation, as well, no doubt, as to add to its weight hereafter.

The seeds are sold as an article of food, but are not made available for oil in this part of the country, though they yield as much as one-third of their weight. They fetch one rupee for 11 seers.

The cultivation of opium is said to have greatly decreased during the last five or six years, owing to disagreements between the farmers and the subordinate agents of the revenue collectors, so that its culture now barely remunerates the grower, in place of producing one of his most profitable returns.

Only grown in small quantities at Saitoonda, Havalee, Hursool, and Untoor, the whole amount being 527 beegas 13 pds., producing 213 puls. 0 mds. 20 srs. at the rate of 6 rs. 0 as. 5 p. per pulla, yielding 1,284 rs.

Cotton.

This is raised nowhere but at Phoolmuree and Saitoonda, and in no large quantities. There are 49 beegas 12 pds. thus occupied, producing 30 puls. 2 mds., giving a return of 413 rs. at the

rate of 13 rs. 8 as. per pulla.

The returns under this head exhibit 324 beegas 1 pd. as so employed, yielding 269 puls. of fruit, and realizing in the aggregate 2,502 rs. 1 a. This comprehends grapes, oranges, figs and mangoes.

Fruit.

The vineyards are principally found in the vicinity of Aurungabad, Kunhur, Rouzah, Sooltanpoor, and Padlee. The vine, like the orange tree, evidences a moiety of those incidental blessings that always accompany and tend to mitigate the evils of war in the early history of a people; for conquering nations have ever been the means by which vegetable productions have been widely and rapidly disseminated over the globe. The grape, originally confined to Syria, has now a very extended range, but it requires certain physical peculiarities of soil and climate to ensure the due perfection of its fruit, which under favourable circumstances are obtained in these light basaltic soils. Cow-dung is the manure employed, which is found to be sufficiently azotized for the purpose, and applied in March, when finished bearing. The vines are then pruned, and the soil opened up by the bullock hoe; a second crop, of an indifferent description, comes on during the rains, which is called the sour crop, "Khutta bhar," and is only used for making vinegar; after this the vines are again pruned and slips set to strike. Weeds are kept down by occasionally using the bullock hoe, which also exposes the soil to the action of the air. The vines are planted six feet equidistant from each other, and trailed over props of the pangara (*Erythrina indica*), which are kept pollarded for the purpose; water is given once in eight days; a plantation is supposed to reach its prime in five years, and will continue bearing for thirty. The produce is sold, generally by the crop, to dealers for exportation to Bombay, Poona, Nuggur, Malligaon and Jaulna. The better varieties, as the hubshee and sybee, fetch one Chandore rupee per three seers. The fuckree sell at 21 seers for the rupee, and the bokree cheaper still.

Musk and water melons are grown during the hot months in the sandy beds

Melons.

of the rivers; the plants are put down at the end of February, and will be ripe in April and May. The manure found best adapted is night-soil, but where that cannot be procured cow-dung in a liquid state is used.

The prices of produce fluctuate with seasons, more observable in dry grain than with any other commodity. Living from hand to mouth, the ryot is very seriously affected by every unusual rise or fall in the value of produce. A season of overabundance, glutting the markets, is to him equally as unfavourable as one of scarcity, for he cannot wait for the markets to improve, but is compelled to sell under his accustomed profits in order to make good the payment of his kists, now falling due at harvest-time. The overstocked markets are taken advantage of by grain merchants to fill up their underground vaults or "pews" as they are called. During the preceding four years little rain had fallen, producing in each succeeding year a gradual rise in the price of every article of produce; dry grains, as usual, advancing beyond all others, doubling and trebling their original rates in the period. In the

Appendix will be found a detailed statement of the range of prices of the principal products throughout the Circar for the last seven years, inclusive of the present one.

In elucidating the complicated question comprehended under the head of **Tenure and Occupation.** tenures, so much matter of a conflicting and perplexing nature presents itself that, rather than hazard crude notions involving doubt and uncertainty, it has been deemed prudent to defer all remarks upon the subject till more extended observations may have tested the value of the information obtained, and place me in a position to give the results of my inquiries with that degree of confidence the accurate nature of the duty requires.

With respect to the cultivators, they are divided into two classes—the Meerasdars or Wuttundars, and Ooprees.

The Meerasdar holds lands in fee, enjoying the usufruct of the soil conditionally that he renders to Government a stated amount of the produce of his labours, rated and fixed in conformity to the extent and qualities of the soil.

The Oopree is merely a tenant at will, occupying lands, not his own, temporarily from year to year upon agreement.

Enams, gifts of land to charitable and religious purposes, and jagheers, the gifts to military and civil officers of the State, have their revenues permanently alienated. The system observed in the management of these lands is the same as that followed in the Circars with this exception, that measures are seldom pushed to such extremities by Enamdars or Jagheerdars, from their possessing a permanent interest in the welfare of the people and improvement of the soil; the policy of such forbearance is visible in the superior condition of the land, cattle, and implements, as well as the ameliorated state of the ryots themselves.

The rates of assessment at the present day have become mere arbitrary arrangements, giving rise to a very irregular and unsatisfactory system in which one party by endeavouring to exact all he can, and the other resorting to every expedient to pay as little as possible, produces endless confusion and embarrassment to all concerned. Though the rule of guidance in the adjustment of *Sevies* is professedly that which has obtained in former years, yet it is often departed from; for should the amount of revenue fall short of the required sum, or the season prove particularly abundant, a *Jastee Puttee* is levied, whilst on the other hand it must be mentioned that Government often remit the dues in time of public calamity. Should it so happen that the ryots refuse to comply with the increased demands made upon them, and coercion be resorted to, they immediately desert their fields and villages, an extremity which quickly brings about an understanding between both parties.

The total revenue upon a village is rated at three seasons, according to the nature of the crops, viz., the toossar, khurreef, and rubbee, and a portion is taken at each harvest. At the toossar, which is generally a small harvest, a small kist is taken; if the khureef forms a larger portion of the whole produce, the amount levied is proportionately large, and is taken in two kists, the first when the grain is ripe (and the payment of a kist is required before permission is given to reap the grain), the second kist is taken before the kullees are allowed to be opened; the remaining portion of the revenue is payable upon the rubbee crop, and is also taken in two kists, which are paid in like manner before the crops are reaped and the kullees opened; and should the rubbee harvest be of a more valuable nature than the khureef the kists taken at this period are the largest.

An arrangement having been entered into between the Mamlutdar and the Patels for the settlement of the year's revenue, *seebundies* are sent by the former to the latter to aid them in collecting the dues from the ryots at the several harvests; and should any ryot refuse to furnish his quota he is put under custody of a *seebundee*, to whom he is obliged to furnish daily *batta*, until he pays the demand made upon him; if this proves unsuccessful, harsher measures are adopted, amounting to personal violence and confinement, and eventually to the sale of all he is possessed of, should he still persist in his contumacy. When the crops run a risk of spoiling by too long standing, pending difficulties in the way of realizing the

demands of revenue, the Government reap the fields, and appropriating their own share give over the remainder to the owners.

Where the families of the ryots prove insufficient for preparing the fields and gathering in the harvest labourers are engaged, who are paid either by wages of money, grain, or in some instances merely providing subsistence and clothing. The daily pay to a man for ordinary work is from three dubboo pice to three pice and a half, to a woman two pice, and to a boy or girl one pice and a half, working from sunrise to sunset and resting at noon. Those labourers employed at the sugar mills receive their hire partly in money and in the produce of their labour; those who drive the bullocks and supply canes to the rollers receive one pice daily and three-quarters of a seer of goor, whilst the person who brings the fuel has nothing beyond his maintenance and clothing.

The principal rivers of the Circar have their origin amongst the ranges of hills, and are named the Poornah, Sewna, Geerja, Aynah, and Gunda, whilst the Godavery flows along the south-west boundary.

These rivers run in different directions: the Sewna and Gunda in a southerly course to fall into the Godavery, and the Geerja, with its innumerable streams, into the Poornah, that passes away in an easterly direction. The beds of all are, for the most part, rocky and shallow, and some contain water the whole year round; in the rains these streams become occasionally rapid torrents, laden with fine alluvial matter washed from the underlying rocks they rise from, and affect the agricultural capabilities of the soil in the manner before alluded to.

The Godavery flows along the south-west edge of the Circar for fifty miles in a very tortuous manner, in consequence of the flatness of the country; its many feeders from the hills cause a rapid rush of waters to take place in the monsoon, when its alluvial depositions are sometimes so great as to threaten new channels being formed for the bed of the river, a circumstance that actually occurred about twenty years ago at the debouchement of the large stream that flows from Byzapoor into the river bed. The banks are sometimes seen to be very precipitous and deeply cut by watercourses; the bed rocky, but sometimes covered to a great extent with sand, and varying in breadth from two to three hundred yards. At Toka the Bombay road crosses, and as an impetuous stream always sweeps by during the rains the Bombay Government have provided a broad and convenient ferry boat for the use of the public.

The two rivers emptying into the Godavery are the Sewna and Gunda.

The Sewna has its source below the Paidkah hill fort, and proceeds first easterly to Khunnur, where it takes a turn to the southward, passing through an extensive tract of country, depositing large beds of rich soil in its course to the Godavery, which it falls into below Sownkhair.

Generally speaking, its banks are low, though occasionally seen rising to a height of forty or fifty feet and precipitous. Shortly after the rains the stream becomes very shallow, and sometimes is lost amidst the immense quantities of alluvial matter obstructing the bed.

The Gunda river rises below the hills close to Russoolpoorah and Mousalla, passes easterly for some distance, when joining with a large stream from Hursool unites to form a broad shallow sandy bed, and proceeding past the city of Aurungabad unites itself, after a very winding course, with the Sewna in the Pytun purgunna.

The important Poornah river has its sources amongst the higher ranges to the north of the Circar, near the base of the Gowtala ghat, a mile and a half west of the small village called Mahone, in the Untoor purgunna in, longitude $75^{\circ} 14' 51''$ east, and latitude $20^{\circ} 23' 50''$ north. Its banks generally rise from twenty to thirty feet above the bed of the stream, which here averages at the broadest parts about 150 yards from bank to bank, the bed generally rocky, and retaining water in wheels the whole year round. The course it flows is easterly; through a valley, upon which it exercises the most important influence, visible in the luxuriant freshness of its vegetation.

The next river is the Ajnah, that rises near the village of Tuphone, in the Untoor purgunna, takes a south-easterly course for several miles, and unites with the Poornah south-east of Sissar Khair. Like the Poornah, this stream spreads beauty and abundance over the valley it meanders through.

Passing southward we arrive at the Geerja, which is a river of some importance, rising in the Bycemuhul hills, and running easterly, receiving in its whole course streams from the ranges extending north and south of it, and with their united waters joins the Poornah in the Jaulnah purgunna. Its banks are rugged, and the river bed very rocky, retaining water the whole year round.

The whole country is covered with dilapidated tanks, bunds or bundaras, aqueducts, baolees and draw-wells.

Upon the plateau above the fort of Dowlutabad are to be seen a series of tanks, in the construction of which infinite labour must have been employed. In the vicinity of what is supposed to have

Tanks.

been the site of the ancient city of Boodra Vunttee, or Bhoodla Vuttee, these noble works are principally to be found, and are no doubt the undertaking of the inhabitants of this once mighty city, though now assigned to the Toghlok kings, the probability being that the latter only repaired or enlarged what they found existing. The Toghlok kings who performed these meritorious acts were Sultan Gheia, his son Sultan Mahomed, and Sultan Feroze, the nephew of the latter, the memories of whom are to this day venerated by the Koonbees as the Toghlok Padshahs, protectors of the cultivators.

The tanks ascribed to Sultan Mahomed are the following:—The Kootloogh Talao, a fine sheet of water when full, and faced with masonry and steps, having a summer palace; upon its banks it is situated to the east of the village of Monsalah, and is called after the Sultan's tutor, Kootloogh Khan, who was governor of the fort of Dowlutabad at the time.

The Purree ka Talao or, as it is variously termed, Rajah Yunas ka Talao, and Gungeerow ka Talao, the latter name being given to it on account of the Peer Gungeerow's tomb standing on its banks, is one of the tanks that were probably repaired, and not built, by the Toghlok Sultan; it is of large dimensions, faced with stone steps on three sides, with an average depth of 70 feet and nearly 2,000 yards in circumference; the bund which confines the water is 210 feet in breadth at top, and is thrown across a deep ravine; a broad flight of forty steps leads to the water on the north side, with a smaller one upon the south; it is fed by subordinate tanks, that have been formed towards the hills for this purpose, one of which is made also to supply the town of Rouzah by a line of underground pipes leading from it. Tanks formed without cement, as this is, are termed Ahmar Punty tanks, from the circumstance of the Pundit Ahmar causing many of this description to be made.

Besides these two, Sultan Mahomed Toghlok made the Doodeah ka Talao, a small tank at the foot of the Lambgaon ghat; a stone faced tank at the north-west entrance to Rouzah; and five others in its vicinity, all of which appear to have been formed for the convenience and necessities of the colony he had twice planted on these heights, when removing the whole population, as he did, from Delhi on two several occasions.

Near Elloora a fine tank has of late years been repaired by Government, and affords the means of irrigation to a very fertile tract of land. Outside the northern gate of this town stands the beautiful stone koond constructed by the amiable Ahila Bae, the mother of the Holkar of the day and grandmother to the present one. The spring that here rises is supposed to possess miraculous properties, and to have cured the Rajah Elloo of his leprosy, in gratitude for which he is said to have excavated the remarkable temple of Kailas, in the neighbouring hills. This most excellent princess, whose life was devoted to acts of philanthropy and piety, built many wells and baolees in this part of the country for the use of the wayfarer.

In the valley watered by the river Geerja, in many places are to be seen the magnificent remains of former aqueducts and bundaras, more especially about the neighbourhood of Sooltanpoor. Tradition assigns these works to Sultan Gheias-ood-

Deen Toghlak. Judging from their present ruinous condition this system of irrigation must have been very long abandoned.

Irrigation may be regarded in the light of an elegant mode of supplying manure, the fertility of soils mainly depending upon the quality and quantity of water employed for this purpose, impregnated as it is with mineral and vegetable matter. In these districts the attention of the earlier Mahomedan conquerors had been directed specially to the effectual and ample supply of this essential element ; the traces of these useful works are still visible, scattered about the country, indicating the munificent spirit that formerly prevailed, nor are such undertakings to be lightly considered in countries like this, subject to uncertain monsoons, and possessing but a shallow soil. Artificial irrigation converts the ordinary lands producing but single crops of common grain into those giving three, and of the richest description. The mode by which the mountain streams were made available for purposes of irrigation was to build a bund of solid masonry across the bed of some nullah favourable for the purpose, of which there is no want of selection, and to diffuse the pent-up waters over the surrounding fields, by the means of channels constructed for the purpose. The bund built across the nullah is called a "Bundara," and the channels "Phats;" it is necessary to form smaller bunds in these channels, to divert the water on the various lands, and they are termed "Barras." These works are undertaken at the joint expense of the cultivators, who in their turn enjoy the benefit ; the whole management is under the charge and control of a Seebundee.

The plan followed for raising water from draw-wells is the usual one by mhot and bullocks ; two wheels may often be seen working at one well.

It is not usual for the Circar to build wells, those existing have been formed by private individuals, an encouragement to undertake which is sometimes offered by holding out the privilege of "Meeras" to all such as do, or allowing lands which it waters to be continued assessed as jeraet for a specified term.

The expense of erecting a well of the better description, lined with bricks, and supplied with stone copings will cost on an average about rupees two hundred and fifty, those of an inferior kind from one hundred to a hundred and fifty rupees.

The repairs of a well are undertaken by the cultivator, but should he be too poor to raise the necessary funds Tuccavees are granted by the Circar ; beyond this, no other assistance is afforded the Koonbees by Government for irrigation. The village tank and wells are kept in repair by the community at large.

Cities, Towns and Villages.

The Circar is divided into purgunnas, each composed of a certain number of towns and villages, called Turrufs. The division comprehended under the head talooka is only known in the purgunna of Untoor.

Shehr is the term applied to the city ; Kusbah to the market town ; Thana to the town where the Tahseeldar resides ; Mouza or Gaon to the village ; Barree or Warree to the hamlet ; and Poora to the suburbs.

Havalee is the term given to the household lands of Government, and were generally districts in the vicinity of large towns, and annexed thereto originally for the supply of the military and civil establishment of the Mahomedan Government.

All the towns and villages are surrounded by walls of stone or mud, many of which are much out of order, but if repaired are sufficiently strong to protect the inhabitants from common marauders. The walls are usually flanked by towers, and not unfrequently further protected by cavalier bastions. In the centre of the village a square building, generally of brick, is seen, with its walls pierced for musketry, and having but one entrance ; this is the Patell's house, and forms a sort of citadel to the village in cases of emergency.

The forms of the houses vary throughout the Circar, according to circumstances those on the lower plains being more inclined to adopt flat terraced roofs, which are made of mud amongst the poorer classes, and chunam in the houses of the rich ; whilst on the higher lands pent roofs prevail, the better kinds being tiled. On the whole the inhabitants appear comfortably lodged.

My limits do not allow of very detailed descriptions of towns and villages ; I will therefore confine my observations chiefly to the notice of the principal ones of each pergunna, whose population exceeds 500 souls, merely offering remarks in a fuller manner upon a few whose importance require it. Proceeding therefore to the notice of this question, I shall commence with Aurungabad, but, having fully treated already of this city, little beyond a passing notice will now be required.

Aurungabad is the residence of the Souba, and a station of the Nizam's contingent. Its population about thirty years ago was computed at 100,000;^a according to my calculations made from a very careful enumeration of houses, I estimated the whole in round numbers at 40,000 : 4,199 pukka houses, varying in size from four stories to one, and 2,932 kutcha houses. In computing, five persons were allowed to every single-storied house, and four to every story exceeding this, which in the aggregate gave $5\frac{1}{2}$ souls to a house ; with this serious falling off in the population there will be found, of course, a similar declension in the prosperity of the city for in lieu, of there being a thousand looms at work, as was then the case, manufacturing costly brocades and silks, the annual worth of which was estimated at about three lacs, there are now but sixteen for brocades and forty for silks, the united value of which does not exceed 80,000 rs. The havalee villages attached to the city amount to 39, with a population of males 1,235, females 1,029.

Hursool.—A dilapidated kusba town, situated two miles N. E. of Aurungabad. It has bunnia shop 1, pukka houses 3, kutcha houses 105, and a population of males 304, females 275. In the flourishing periods of Aurungabad this town was largely populated : its magnificent serais, crumbling masoleums, ruined garden houses, and rouzahs afford sufficient evidence of its former prosperous condition. Its principal towns are Chikultana ; bunnia shops 6, pukka houses 12, kutcha houses 216, males 1,076, females 515. Chowka and Nourbarree ; bunnia shops 5, pukka houses 5, kutcha houses 204, males 456, females 398.

Sittara.—A small kusba distant 3 miles south of Aurungabad ; bunnia shops 6, pukka houses 51, kutcha houses 21, males 309, females 288.

Walloorj.—A kusba of some importance 8 miles south-west from Aurungabad ; bunnia shops 16, pukka houses 11, kutcha houses 147, males 583, females 538. Its principal towns are Ranjungaon khurree ; bunnia shops 9, pukka houses 3, kutcha houses 118, males 356, females 232 ; Toorkabad, formerly the kusba of a purgunnah but now united with Walloorj. Bunnia shops 18, pukka houses 8, kutcha houses 90, males 410, females 261.

Gundapoor.—A considerable-sized kusba. It is situated 28 miles south-west of Aurungabad, containing bunnia shops 20, pukka houses 82, kutcha houses 355, males 1,221, females 1,129. Its principal towns are Lassoer, pleasantly situated on the banks of the Sewna river ; bunnia shops 43, pukka houses 78, kutcha houses 189, males 731, females 740.

Amanoollabad.—Bunnia shops 3, pukka houses 93, kutcha houses 36, males 357, females 359. Kaigaon ; bunnia shops 8, pukka houses 3, kutcha houses 105, males 508, females 394. Sewur kusbah with nine barrees attached ; bunnia shops 28, pukka houses 17, kutcha houses 419, males 1,205, females 1,100.

Garra Peepulgaon.—Bunnia shops 20, kutcha houses 117, males 298, females 242. Bhervahanora ; bunnia shop 1, kutcha houses 86, males 255, females 248.

Byzapor.—This kusba is situated upon the borders bearing 40 miles west of Aurungabad ; a very considerable trade is carried on in the fabrication of silk goods, employing 125 looms and 10 winding machines, besides 50 looms for cotton cloths with silk borders, for sarees ; the estimated worth of which is from forty to fifty thousand rupees ; the goods are principally disposed of at the great Mhyjee fair. Bunnia shops 141, pukka houses 575, kutcha houses 403, males 3,338, females 2,061. The principal towns are Boresur ; bunnia shops 14, pukka houses 2, kutcha houses 115, males 437, females 383. Nawurgaon ; bunnia shops 8, pukka houses 10, kutcha houses 103, males 341, females 244.

^a Sir Henry Russell's report on the Nizam's Dominions.

Mahkalivargaon ; bunnia shops 4, pukka houses 5, kutchha houses 66, males 250, females 255.

Khundalla.—A kusba town situated 38 miles from Aurungabad in a north-west direction ; bunnia shops 17, pukka houses 5, kutchha houses 196, males 444, females 390.

Khanapoor.—A kusba town distant 24 miles north-west from Aurungabad ; bunnia shops 6, pukka houses 12, kutchha houses 159, males 440, females 398.

Ellora.—A large kusba two-thirds dilapidated. It lies 16 miles north-west of Aurungabad ; bunnia shops 9, pukka houses 93, kutchha houses 88, males 605, females 623. It possesses only one town of any note, Kussaibkhaira ; bunnia shops 60, pukka houses 12, kutchha houses 194, males 645, females 511.

Havalee Dowlutabad.—The ancient city of Dowlutabad is situated 8 miles north-west of Aurungabad ; this interesting locality ; once the seat of a long line of Hindoo kings, and then known as Deoghiri, is at present nothing better than a miserable cluster of mean huts forming the petta of the fortress. For any information concerning its earlier history we are more indebted to tradition than to historical records, the first time it became known being in 1294, when Ala-ood-Deen surprised and captured the citadel. It owes much of its importance to the emperor Toghlaq Mahomed, whom Ferishta describes as being one of the most accomplished princes and at the same time the most furious tyrants that ever dignified or disgraced human nature ; he it was who entertained the wild project of removing the capital of the dominions from Delhi to the Deccan, by commanding the inhabitants to depart with all their families and wealth to Deoghiri, and in 1339, the year this event took place, its old name gave way to Dowlutabad, its present one. He erected handsome palaces within the walls and dug a deep ditch all round. Twice the inhabitants were permitted to return to Delhi, and twice compelled to return again, on pain of death. It continued to be the capital until A.D. 1616, when Malik Amber removed the court to Aurungabad, since which period, though lessened in importance, it yet continues to be regarded with jealous anxiety, on account of the nature of its natural and artificial defences, which are very peculiar. A weak wall surrounds the petta, beyond which, three walls, with gates, are to be passed before the inner fastness is gained. A narrow causeway crossing a wet scarped ditch leads to the low entrance of this remarkable stronghold ; after which the ascent continues for a considerable distance along a winding gallery hewn out of the heart of the rock, the nature of which being amygdaloid trap, and not granite as some writers erroneously state, it is readily worked. The upper outlet has a contrivance for securing its mouth, in the shape of a huge iron grating which can be laid on, and a fire being kindled upon the bars would effectually arrest the approach of any assailant from below. The principal objects that arrest attention on looking down from the pyramidal hill on which this fortress is built are the ruined mahal of Toghlaq Mahomed, the governor's house and garden, and the lofty minar built by Ala-ood-Deen. The handsome building close upon the summit was a summer residence of the emperor Shah Jehan, and crowning the pinnacle is a broad platform, on which a large piece of ordnance is mounted, above which is the flag-staff, bearing the standard of the Nizam. Cisterns of excellent water are hewn out of the rock, causing no scantiness of this supply. The prickly-pear, and rank vegetation, have made the inner fort a perfect wilderness, and it is in consequence very unhealthy after the rains. It may be remarked that soils on which the prickly-pear is found are generally those on which the grape will be found to thrive, as Mount Etna, for instance, and many other parts of Italy ; here the vines are particularly flourishing, as well as other kinds of fruit, figs in particular. The principal towns in the Havalee Dowlutabad are Rouzah and Kaghuzpoora.

Rouzah lies five miles north of Dowlutabad, and twelve from Aurungabad in a north-west direction. It is surrounded by a handsome stone wall, erected by Aurungzebe, but though the houses are substantially built two-thirds are dilapidated and in a falling condition. The materials for constructing this town, as well as Aurungabad, Jaulna and many of the large tanks on the high table land, were obtained from the ruins of the ancient city of Bhoodda Vuttie, situated

on the narrow table land between Rouzah and the Dowlutabad ghat. Rouzah, as its name would imply, is a burial place, and famous as containing the ashes of two Mahomedan saints, Boorawn-u-Deen and his brother Zerbuksh, besides many other holy men, whose tombs have sanctified the spot, and caused it to be regarded by devout Mahomedans as a necropolis of peculiar sanctity. There are about thirteen goombuz or domed tombs, and about 1,400 without such buildings. Within the walls of the town are seen the plain tombs of Aurungzebe and his grandson, Azeemoolshah, in the same enclosure along with Zinooolhuk Saib, the spiritual adviser of Toghlaq Mahomed: close by are those of the Nawab Azif Ja and Naser Jung, his son. Upon the north of the town, and a short distance from the walls, several goombuz or domed tombs are standing, the principal of which are a large one to the west containing the body of Nizamshah Byree, one of the last kings of Ahmednuggur. The next largest eastward is the tomb of Malik Amber, the greatest financier of his times, and minister to the Ahmednuggur Padsha Moorteeza; near to it stands the goombuz of his wife Beebee Kurreema. A remarkable-looking goombuz under the hill was built by Khoja Feroz for himself, when superintending the erection of the large tomb of Nizamshah Byree, his master: several others exist, but none, I believe, of any note or consequence. The revenues of several villages are set apart for the purpose of keeping up the repairs of these tombs. There is very little trade in the town; sugar of good quality is made in one or two houses, and a few sarees of silk and cotton. Savaye, a description of vermicelli, is also peculiar to the town as an article of trade. Bunnia houses 32, pukka houses 416, kutchahouses 59, males 1,574, females 1,511.

Kaghuzpoora.—A village of large size, the inhabitants of which are exclusively engaged in the manufacture of paper, it lies midway between Rouzah and Dowlutabad. Bunnia shops 8, pukka houses 42, kutchahouses 91, males 605, females 623.

Kooltabad.—Burrood contains a few good houses. It is situated 28 miles north from Aurungabad; bunnia shops 2, pukka houses 32, kutchahouses 69, males 261, females 242. Golagaen; bunnia shop 1, pukka houses 12, kutchahouses 42, males 284, females 235. Kherdee, one of five villages given in enam for the preservation of Aurungzebe's tombs. Bunnia shop, 1, kutchahouses 131, males 283, females 224.

Sooltanpoor.—The kusba town of Sultanpoor is in a very dilapidated condition, never having been repaired since it was sacked and burnt by the Pindarees. There are some vineyards at this village. The revenues are appropriated, with six other villages, to the repairs of tombs at Rouzah. Bunnia shop 1, pukka houses 2, kutchahouses 35, males 132, females 114. Gunnooree, an agreeable locality 22 miles north of Aurungabad, is held in enam, along with two other villages, for the maintenance of the fort of Dowlutabad. It was a favourite resort of Aurungzebe, and was held in jagheer by one of his daughters, who planted avenues of mango and tamarind trees around the town, and also sunk wells at intervals upon the road towards the city. A ruined garden house marks the site of the royal abode; a large tank amongst the hills upon the south was built by Syud Budeozam, the patel in Aurungzebe's time, which is still in good preservation, and at a little cost might again be made available for irrigation. He also built the serai outside the town, and another above the pass leading to Aurungabad. Sugarcane of a very superior description is grown around the lands of the town. Bunnia shops 23, pukka houses 10, kutchahouses 131, males 524, females 446.

Kingaon, a village famous for its sugarcane lands. Bunnia shops 10, pukka houses 104, kutchahouses 51, males 623, females 305.

Guddana.—Excellent soil for sugarcane. Bunnia shops 9, pukka houses 11, kutchahouses 82, males 293, females 290.

Taklee.—A large kusba town situated in the valleys about 24 miles from Aurungabad in a north-west direction. It has some good houses, and seems to have once been a town of some importance. Bunnia shops 19, pukka houses 5, kutchahouses 201, males 597, females 555.

Sangnee, a town of some note: a jatra is held here once a year. Bunnia shops 10, pukka houses 3, kutchahouses 190, males 434, females 354.

Dhamungaon.—Bunnia shops 3, kutchā houses 98, males 263, females 265.

Dhurragaon.—Bunnia shops 3, pucka house 1, kutchā houses 109, males 259, females 298.

Phoolmurree.—A large kusba town situated on the banks of the Phoolmusta river, amongst large topes of mango trees. It is 16 miles N. N. E. of Aurungabad. In the neighbourhood are many remains of ancient Hindoo temples, the ruins of which have been employed for constructing the town walls, gates, musjids, and Peers' shrines. The figures and designs are all clearly and neatly cut, principally representations of Mahadeo and his consort. At the south gate, which is in ruins, a stone with a long inscription in Sanscrit is observed, nothing of which can be deciphered but the date in which the temple it belonged to was built, viz., 1166 of the Hindoo era, agreeing with A.D. 1244, half a century prior to the first Mahomedan invasion. A large town called Veerdar or Beeldar was formerly existing within a couple of miles towards the south; nothing now remains but the gateway. The soil around is remarkably fertile, yielding sugarcane and every description of vegetable produce in the greatest perfection with the exception of the vine, which cannot be cultivated on account of the destruction occasioned by white ants. Bunnia shops 66, pucka houses 36, kutchā houses 487, males 1,683, females 1,533. Babra; bunnia shops 97, pucka houses 12, kutchā houses 403, males 1,084, females 1,067. Waragaon; bunnia shops 11, pucka houses 3, kutchā houses 183, males 445, females 413. Khamgaon; bunnia shops 7, kutchā houses 206, males 386, females 390. Khaigaon; bunnia shops 3, kutchā houses 169, males 399, females 376. Burrode Burra; bunnia shops 9, pucka houses 3, kutchā houses 151, males 307, females 293. Peerbowdee; bunnia shops 27, kutchā houses 158, males 371, females 305. Dhamungaon; bunnia shop 1, pucka houses 4, kutchā houses 161, males 323, females 299. Woomrowtee; bunnia shops 2, kutchā houses 129, males 274, females 268. Neellode; bunnia shops 4, pucka house 1, kutchā houses 81, males 235, females 317.

Kunhur.—A large kusba on the banks of the Sewna river, distant 33 miles north-north-west of Aurungabad, formerly a station of the Nizam's Contingent, and now the residence of the Company's Bheel Agent. Vineyards and orange groves are found in a very flourishing condition around its neighbourhood. Bunnia shops 66, pucka houses 149, kutchā houses 398, males 929, females 836. Andhanair; bunnia shops 5, pucka houses 2, kutchā houses 116, males 340, females 314.

Gowtala.—This pergunna contains only five villages, which, with the kusba, are all deserted excepting Dondgaon, a small hamlet of 8 males and 11 females.

Untoor.—This purgunnah is delightfully situated amongst the hills upon the north, occupying two lengthened valleys, which are divided by a lofty narrow ridge that is impassable for wheel carriages. The fort of Untoor is placed upon a narrow spur projecting into Kandesh; the form of the hill it stands upon is nearly square, and about a mile in circumference. A natural scarp of about 700 feet surrounds it on all sides excepting towards the south, where it has been scarped by art. It was well supplied with water, and presents an excellent instance of a hill fort rendered impregnable by its natural defences. It has a Rajpoot garrison and a petta containing about 12 houses. The plateau extending between this fort and Nagapoor is composed of disintegrated trap and porphyritic rock, presenting a very desirable site for a sanitarium. Undharee, the kusba town; bunnia shops 34, kutchā houses 288, males 698, females 617. Nagapoor, very pleasantly situated on the banks of the Poorna; bunnia shops 16, pucka houses 26, kutchā houses 213, males 615, females 590. Peeshoor, a large town on the banks of the Unjaina river; bunnia shops 74, kutchā houses 279, males 690, females 638. Kurrung Khaira; bunnia shops 18, pucka house 1, kutchā houses 246, males 604, females 520. Pulsee Tiggee; bunnia shops 19, kutchā houses 127, males 699, females 616. Saindra; bunnia shops 20, pucka house 1, kutchā houses 198, males 415, females 387. Karulla Degrus; bunnia shop 1, kutchā houses 178, males 402, females 400. Urgaon; bunnia shops 8, pucka house 1, kutchā houses 109, males 285, females 236. Navepoor; bunnia shops 26, pucka house 1, kutchā houses 130, males 258, females 253.

Saitoonda.—Kusba Ghatnaundra ; bunnia shops 19, pukka houses 6, kutcha houses 316, males 814, females 754. Umbae ; bunnia shops 33, kutcha houses 239, males 469, females 395. Umthana ; bunnia shops 14, pukka house 1, kutcha houses 145, males 373, females 336. Davulgaon ; bunnia shops 4, kutcha houses 199, males 331, females 306. Charnair ; bunnia shops 5, kutcha houses 141, males 354, females 338. Ralegaon ; bunnia shops 7, kutcha houses 108, males 295, females 266. Chicholee ; bunnia shops 15, pukka houses 5, kutcha houses 101, males 245, females 333.

Roads and Communications.

From the variable nature of the face of the country the roads throughout the Circar are proportionately difficult for communication, though generally speaking they are pretty good, or might readily be made so, water seldom hanging, and the materials for metalling being close upon the surface ; the greatest inconveniences are the occasional beds of black soil found in the lower levels, which render the roads impassable in the rains where they occur, and also the sides of the nullas in the same localities having banks of soft alluvial earth, rendering in such cases even passage for bullocks a difficult matter, however towards the hills a rocky shallow soil prevails, on which carts may travel the whole year round. If the hill be hugged too closely, deep nullas occasionally obstruct the road, but this inconvenience is easy of remedy at trifling cost by sloping in and out, and paving the centre with stones sufficiently large to withstand the impetuosity of the hill streams.

The passes by which the higher plateaus towards the north are gained are through the Chowk ghat, a steep and rocky ascent passable for carts, leading to Phoolmurree. The Gunnooree ghat, passable for carts, and a winding stony and steep road up the side of the hill, leading to Gunnooree. The Dowlutabad ghat, a broad ascent of nearly half a mile, sufficiently easy until near the summit, when it becomes very steep ; passable for carts, but not very generally used. Besides these there are two or three bridle roads, and footpaths, as well as another ghat at Ellora.

Upon the north-west there are four passes in what is called the Adjunta or Sat Malla range, all passable for carriages. These are :—The Adjuntah ghat, not within the Circar. The Gowtala ghat, lately made passable for wheel carriages ; the ascent, though difficult for traffic, is easily managed with light loads, and has been much used since the repairs that lately have been made. It may be kept in its present state at no great cost, and is of great convenience.

The Purdaree ghat is a made one, and has a good and easy ascent for loaded cattle.

The Kussara or Kassarbarra ghat enters the Nuggur districts near the village of Waukly. This too, though not a made road, is a very good and passable ghat for loaded carts. About ten miles south of this pass the Sat Malla range slopes away into the Nuggur country, and in so gradual a manner as to permit a carriage being driven over it with ease. Besides these passes for wheel carriages, there are many along the range available for loaded tattoos and bullocks, and foot passengers.

Upon the event of a railway passing through Kandesh, the route it should adopt has been suggested as being one that would command easy access to the principal lines of traffic from the Nizam's frontier, as for instance the cleared road from Numinaur to Mulcapoor, which is well suited for the purpose, being a good level bit of country ; should this ever be accomplished, the ancient road from Aurungabad to Surat will be the best line for the traffic ; passing south of the Adjunta ghats the remains of this old road are distinctly visible, in some places the pillars that marked its distances are still standing. The tapal road from Bombay on entering the Circar at Toka traverses a flat level throughout, and consequently is much obstructed by nullas and heavy soil ; the worst nullas have a light wooden bridge thrown across them, sufficiently strong to allow the horse tapal to cross.

Population.

The census has been made from returns furnished by the Putwarees of each town and village, the truth of which I am inclined to believe, though probably the estimate may be found rather under than over the real amount.

The scanty population of these districts arises from their having in former days been afflicted with several awful visitations of war, famine, and pestilence ; the effects of which have been as disastrous as lasting ; the greater part of those who did not fly the country perished through destitution, or by disease induced thereby ; and where destruction of human life occurs to such a frightful extent as has been witnessed within these districts during the last half-century it takes many generations to restore the population back to its original strength.

The famines that have desolated the land during the last fifty years amount to four, indeed we may say five, for the scarcity prevailing in 1846 may fairly so be termed. The first occurred in 1787, grain selling for nine seers the rupee. The second and most dreadful of all happened in 1802, fearfully aggravated by the horrors of war ; the marauding hordes of Holcar, under Ameer Khan, having carried havoc and destruction through the country the preceding year, destroyed the harvest, and grain was sold at one rupee for a seer and a half ; thousands perished from inanition or fled ; and so dire was the scourge that to the present day the revenue has never recovered the shock ; whole tracts of valuable land then covered with towns and villages are now lying desolate, which forty years ago yielded rich returns to Government. This is particularly the case between the Gowtala ghat and Byzapore, but were I to particularize every locality thus impaired I should have to name every town and village of any note throughout the Circar. The third famine was in 1825 : grain sold at 9 seers the rupee. The fourth was in 1834, and grain sold at 12 seers the rupee. The fifth occurred in 1846, when grain was sold for 15 seers the rupee, being just double the usual price. Much sickness prevailed amongst the poor in those districts where the dearth was most felt, cattle dying in great numbers, and in many places the fowls have completely disappeared.

The gross estimate of the population amounts to 154,767 exclusive of the city of Aurungabad, of this 138,376 are Hindoos and 16,391 Mahomedans, or one Mahomedan to eight Hindoos, and averaging 5 persons to a house.

In the abstract of the census there is shown a preponderance of males over females, a result in some degree corroborative of its truthfulness, as such is found to be the case in all countries where the censuses have been accurately taken. In England the census of 1830 gave males to females in the ratio of 19 of the former to 18 of the latter ; the returns here show something in excess of 88 females to 100 males, the respective numbers being males 82,075 and females 72,692, and here a curious circumstance is perceived in the fact that adult females bear a larger proportion to adult males than girls do to boys, and that it is owing to the excess found in male children that the preponderance of the male sex ultimately takes place ; as for instance, in every hundred men there are 98 women, but in every hundred boys there are but 71 girls. One way to account for this remarkable fact may be explained in the custom that obtains in the East of classing girls as women at a far earlier period than is the case in Europe. Respecting births and marriages, the prejudices of the natives prohibited all attempts at obtaining information under this head. The returns of deaths present a high rate of mortality, being one in 26 : the average rate in Java is 1 in 40, and in England 1 in 51. This excessive mortality may have been the case, as the census was taken for the year 1846, which was one of extreme distress, occasioning much sickness of a depressing nature, cholera alone amounting to nearly the half of the casualties, small-pox about a fifth, fevers a tenth, and other disorders about a third. Of the diseases incident to the inhabitants, fever as usual prevails most generally, and is often found of a serious nature towards the hilly country, or amongst the broken banks of ravines, which are generally depôts of malaria ; rheumatism and spleen disease are always rife in such localities. Blindness is a common calamity, generally arising from structural disorganization of the eye, the ravages of small-pox, a disease that annually scourges the population to a very serious extent in common with cholera. Leprosy of the skin is less common than in its more

hideous form, affecting the joints. Guinea-worm is occasionally seen, but is not common, neither is stone in the bladder.

The following table shows an analysis of the population according to their arrangement by castes :—

	POPULATION ARRANGED IN CASTES.				
	Brahmins.	Rajpoots.	Shoodrahs, &c., Mahratta Cultivators.	Atee Shoodrahs or Low-Castes.	Moossulman.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Circar Dowlutabad	5.455	2.395	67.513	12.435	10.298

We see from this analytical summary that the bulk of the people is composed of Shoodrahs, nearly to the extent of three-fourths of the whole, and that upwards of two-thirds of this useful class are to be found engaged in cultivating the soil. The Koonbees number 25,675, which in a population of 154,767, allowing five persons to a family, gives 1,667 per cent. of the people engaged in agriculture. It is to be understood that this calculation does not include the city of Aurungabad.

The Brahmins do not appear to be a large class, not numbering above one in twenty persons. The Rajpoots or Purdaisees are about one in fifty, and are principally the descendants of the troops entertained and settled in the country by Aurungzebe. The low-castes are met with in the proportions of something less than one in nine. Of these the Mhars or Dhers are a very numerous body, forming two-thirds of the whole number. Bheels about one in twenty. These wild people are found principally in the western parts of the Circar, where they act as village guards. The Mangs, who are also employed at many places in the same capacity, are nearly of the same strength, being about one in seventeen.

The habits of the people are disposed to peacefulness, and they are sober, frugal, long-suffering, and intelligent; the Koonbees for many centuries have followed the great business of life, the tillage of the soil, with infinite skill and industry. Amongst each other they are reported to be sincere and honest, but where the reverse occurs it will generally be found to arise from their taking refuge in finesse, the only weapon the weak possesses against the strong; this system of dissimulation is more one of necessity than choice: that it exists there is little doubt of, but much is to be conceded in favour of people so circumstanced as we find the poor ryots, whose extreme poverty has plunged them into irretrievable embarrassments, rendering them apathetic, and heedless for the future.

Education, such as it is, may be stated as being exclusively confined to the Brahmins, shopkeepers, soucars, and upper classes of Mahomedans. Sixty schools, at which 813 pupils receive instruction, are in no way proportionate to the amount of population, the general illiterateness of which may be best understood by the fact that there are only found 3,637 persons able to read and write, or two and a half per cent., of the entire population exclusive of the city of Aurungabad. The amount of education embraces just such a sufficient knowledge of reading, writing and arithmetic as suffices for carrying on ordinary business in the bazars the rudiments of which are first mastered by writing with a style upon a board sprinkled with sand or brick dust, and afterwards by writing with a fluid of pipe-clay and water on a painted board. The language spoken throughout the Circar is Mahratta.

In each pergunna the office of Cazi is hereditary, a custom which causes many instances of the duties being exercised by inefficient persons.

The real police of the country are in fact the Jaglias, whose duty it is to trace robbers anywhere within their own precincts, beyond which the responsibility falls

upon the Jaglia of the next village. These persons are supported by huks and russooms, and are taken from the Mangs, Bheels, or even Dhers, as the case may be. The Purdaisee villages, that is, the Zemindars of which are Rajpoots, have no native Jaglias, but depend on their own arrangements for police protection. Dacoity and large gang robberies are put down by Seebundee troops under the Talookdar, assisted by the village Jaglias.

The passes through the ghats bordering Kandesh are guarded by Chowkedars, acting under the orders of the officer commanding the Hill Rangers, and supported by detachments of regular troops from Aurungabad and Booldana.

The whole system of police appears of a very unsatisfactory nature, being apparently guided more by arbitrary principles than anything recognized or fixed, whilst the ordinary practice of the Adauluts in criminal law is very dilatory.

The Zillah Umeen is the head of the civil and criminal courts, both in the city and districts. In the latter the common cases are generally disposed of by the Aumil, who submits the matter to his superior farming the revenue, for summary decision, or a still further reference to the Zilla Umeen.

Punchayets are taken advantage of by Mussulmans as well as Hindoos—in special cases, where arbitrations are involved, the contending parties, before the court sits, binding themselves strictly to abide by the award.

Commerce.

There is very little trade carried on within the Circar, commercial transactions being all of little amount, and confined principally to a mere exchange of commodities for internal consumption. Its grand export is dry grain, which with sugar and culdee form pretty well the entire amount of exported produce. Manufactures are confined to the wants of the community with the exception of a small quantity of brocade, silk goods, and a trifling amount of cotton cloths. The return trade is salt, iron, copper vessels, cotton cloths, and some other articles of less note for domestic use.

The grain trade is in the hands of a few native merchants, the principal of whom resides at Toka, employing agents at Aurungabad for supplying the consumption for large towns and the export trade to Bombay. In making their purchases three methods are generally resorted to, the necessities of the poor Koonbees giving the advantage in every case to the buyers. The first is called "Deodee," and is an agreement on the part of the cultivator to return one pulla and a half of grain at harvest time for every pulla given in the sowing season; the second is called "Rungoda," when a price is fixed upon the grain in ear, and money advanced upon the probable produce it yields; and thirdly, the collectors of grain advance the Government instalments when the grain is ripe to cut, at the rate of 25 per cent., stipulating for the loan being paid in ready cash, compelling the sale of the grain often at a loss, when the lenders usually become the purchasers, oftentimes below the bazar price.

Excepting in large towns the population subsist on the produce of their own immediate neighbourhood; their clothing is generally imported from Berar, cotton goods forming but a very trifling item of the manufacturing industry, the plant not being cultivated in the Circar. Blankets of black wool are made in every village by the Dhers; one man can make two a month, which he sells from 8 annas to one rupee each. In several places a strong hempen canvas called tat puttee is made, the breadth of which is about half a foot.

The weaving of mixed goods fabricated from silk and cotton, called mushroo, is carried on languidly at Aurungabad and Rouza, and more briskly at Byzapoor; the filature silk is imported from Bombay. Brocade is alone manufactured at Aurungabad, as well as gold thread.

Not being able to procure the amount of exports and imports, it is impossible to draw conclusions as to the state of trade between the Nizam's country and the Company's, and I must therefore defer doing so until in possession of these documents.

The principal return trade of grain from Bombay is salt and iron. From inquiries in each pergunna I have been able to calculate the amount annually

consumed of salt as about 11,607 pullas 1 md. 23 srs., which with 300 pullas to be allowed for the consumption of the city of Aurungabad gives 14,607 pullas as the gross amount. The consumption of this article upon an average amounted to three-quarters of a seer a month each individual; the price was 2 dubboo pice a seer.

Iron is received from Bombay and Bhewndy in sheets and rods, and from Nerinul in small bars; nearly the whole is employed for agricultural purposes, very little being used for building. Bullocks are never shod, neither are the tatoos of the villagers.

The annual consumption of iron as returned to me by the district officers amounts to 425 pullas 1 md. 36 srs. from Bombay and 178 pullas 0 md. 34 srs. from Nerinul, which added to what is expended in the city, viz., 31 pullas 0 md. 13 srs. makes in the aggregate 638 pullas 1 md. 26 srs.: therefore estimating the land under cultivation at 14,18,938 beegahs, there will be found to be expended about 15½ pound of iron upon every square mile of cultivation.

Sugar Manufactory.

The first part of the process is undertaken by the farmer upon the field, who there expresses the juice, and boils it to a thick consistency called "Rab," sometimes carrying the evaporation further, reducing it to goor or Muscovado sugar, in which state it is disposed of to the Hulwai, or sugar refiners, who deprive it of its impurities, and render it fit for the market. The mills employed for crushing the cane are a great improvement upon those formerly in use, the shattered fragments of which are to this day seen around most of the villages throughout the Circar, supplying in their ruins the silent evidences of a former flourishing condition of the manufacture of sugar. The old mill was a large block of stone hollowed out, and the juice of the sugarcane very rudely pressed out, by the means of a large wooden pestle, crushing the stalks against the sides. The common oil mill of the country is precisely of the same description; the mill that has superseded this rude machine has two solid vertical cylinders, made from baubul wood, the heads of which are cut into the shape of endless screws, whose spiral grooves and ridges, four in number, interfold with each other on being put in motion, which is managed by a long horizontal lever fixed to one of the cylinders in its centre, and at either end of which a pair of bullocks are attached; the height of these rollers is 5 feet, the head of the screw being one-third of the whole; the diameter is 2½ feet below the screw head; the surface is scored with narrow channels forming horizontal rings round each cylinder, which is done to assist in obtaining a firmer hold of the cane, and allowing the expressed juice the better to escape. As it trickles down these crushing rollers it is received into a shallow gutter surrounding the mill bed, and passes from thence by an underground channel into a large receiver made of earthenware, sunk into the ground to be ready at hand for the operation of boiling. The apparatus for this purpose is so arranged as to allow the boiler to be on a level with the juice receiver, the fireplace being excavated so as to admit of this adjustment. The juice is now boiled rapidly for four hours and a half, adding nothing to correct acidities, and assisting it no further than in skimming off diligently the scum as it rises to the surface; when sufficiently inspissated it is poured into a shallow circular hollow formed in the floor of the mill, and stirred and raked about to cool and granulate; when sufficiently cooled it is poured into holes made in the ground, round the sides of which a coarse cloth has been passed, so that when perfectly hardened the cloth is pulled up, and the goor detached. These weigh each on an average about thirty-five seers, and are found more convenient for carriage than when the inspissation has not been carried further than leaving it in the state of fresh honey, as is the case when it is sold as rab; in this state it is poured into large earthen jars holding four maunds, four of which are a load for one gharree. Though rab is more liable to damage by keeping than goor, and less convenient to transport, yet the Hulwai prefers it, on account of the difficulty there would be in its adulteration, whilst goor admits of its qualities being lowered by mixture with impurities.

In making sugar, the first thing the Hulwai does is to fill with rab a large closely wattled bamboo basket, five feet high, and twenty feet in circumference, capable of holding about forty pullas of rab; the basket stands upon horizontal poles, having a well beneath, sunk in the floor, into which drips the draining from the baskets, which is called "kaki," or molasses. It is allowed thus to remain for fifteen days, when from the consistence of honey it will have been found to have taken the appearance of Muscovado sugar, the plan for freeing it of its gluten and other impurities is accomplished by a series of "meltings," as it is termed in the West Indies—that is, breaking up the crystallized mass, and forming the whole into a pap with a mixture, as thus prepared:—five seers of salt, two seers of soda, one seer and a half of the cuttings of the euphorbia tiraculli, one seer of cuttings of the euphorbia ligularia, and one seer of the ashes of the plaintain tree, the whole to be boiled for one day in two maunds of water, strained and mingled with the raw sugar into a pappy state, after which it is allowed to drain for ten days, when the same process of melting is again performed, with this difference, that this time the several ingredients are diminished, there being but one seer of salt, one seer of soda, one seer and a half of euphorbia tiraculli, one seer of euphorbia ligularia cuttings, and one seer of plantain ashes, with only twenty seers of water. Five days are now sufficient to drain the crystallized mass, after which the surface is covered to the depth of four fingers with plants of the vallisneria verticillata, removing them every third day until the process is finished. About twenty seers of sugar are usually found encrusted on the surface at each removal; the time required from the first steps of refining to bringing into this condition occupies about ninety days, and fits it for the remaining operation, which is to clarify the sugar, and is thus performed: one maund of the prepared sugar is dissolved into a thick syrup, by first adding three seers of water, and boiling gradually, adding to this, fourteen more seers of water, with two seers of milk, the impurities being carefully removed as they arise upon the surface. The clarified syrup is then gently evaporated to the point of crystallization and left to evaporate, and crystallized in the sun and air, which when effected the crystals are crushed fine, and in this state it is sent to the market. This sugar is very sweet, and of a very fair white colour.

Forty pullas of rab when thus converted into sugar and refined gave on an average forty maunds of sugar, sixty maunds of kaki or molasses, and twenty maunds of waste, the expenses attending which would be as follows:—

	Rs.	A.	P.
Forty pullas of rab	680	0	0
Carriage to refining house	5	0	0
Expense of bamboo basket	1	0	0
Wages to labourers	46	0	0
Wages to sugar refiner	12	0	0
Tank weed (by the job)	4	0	0
Ingredients for melting	1	10	0
Firewood	10	0	0
Milk	4	0	0
Hire of iron cauldron	20	0	0
Mats... ..	0	4	0
House rent	2,	0	0

Hyderabad Rupees... 785 14 0

Forty maunds of sugar sells for Rs. 720 at 18 rupees a maund, and sixty maunds of kaki or molasses for Rs. 180 at 3 rupees a maund, making altogether Rs. 900 for the batch, out of which, when the expenses of its manufacture have been deducted, there will remain a balance of Rs. 114-2 as the profits of the manufacturer.

Paper Manufactory.

The process of paper-making is followed on rather a large scale at the village of Kaguspoor, midway between Rouzah and Dowlutabad. The whole of the village employs itself in this business, the inhabitants of which, with a few exceptions, are all composed of Mahomedans. The cold season is the one most

favourable to their purpose, as not only is water then more plentiful, but there are not blowing those high winds so prevalent in the hot months, and which interfere very seriously with the process. The manufacture has of late years greatly declined, and still continues to be depressed, no reasons for which were assigned.

The materials out of which the paper is manufactured are old remnants of tat puttee and gunnee bags, which being cut into pieces about an inch square are subjected to a pounding under the "daiklee" for a whole night. In the morning the beaten shreds are carried to the tank, and all dust and dirt removed by washing, which is thus managed :—a long cloth has its two ends made fast round the loins of two men, who enter the tank, and commence stirring the shreds well about in the cloth between them, by which means it obtains a very effectual cleansing, after which it is returned to the "daiklee" and, adding lime in the proportion of one maund to three maunds of shred, is again well pounded by the "daiklee" for eight days, and then left quiet for a week, when, after repeating this alternate operation of pounding and resting, it is submitted to a thorough washing to detach every particle of lime from the mass, which when effected, soda and soap in equal proportions are added—four maunds of each to every three maunds of pulp—when another pounding is given, and the mass left in heaps for a day. On the following one it is well washed, and laid out to dry and bleach for four days. When the moisture has by this time all escaped, the dried substance is rubbed by the hand upon a chunammed floor, sifting it afterwards to allow the dust to pass away, when three maunds of soap to the same proportions of pulp are used, and again beaten for eleven days, again washed, and again dried and bleached, when it is further reduced to a pultaceous consistence with water for use, by beating and treading in a circular hole, made of chunam for this purpose ; from thence the pulp is removed into a cistern for use. This cistern is four feet by five wide with sides sloping towards the base, and is three feet deep.

The moulds consist of a framework adapted to the size of the sheets required, with narrow rims, having bars placed lengthways, their edges presenting, and an inch apart ; upon the frame is laid a fine chick made of a peculiar grass, and kept firmly fixed by securing the edges with two flat sticks, that fit in at the top and bottom of the frame ; the moulds being prepared, the workman, who sits squatted close to the edge of the cistern, stirs up the pulpy matter with a stick and then dips the frame vertically in the cistern, gradually inclining the lower part upwards, so that by the time it reaches the surface it lies flat upon the water ; he then carefully and quickly notices those portions in which the pulpy matter lies uneven, and remedies by again dipping the frame into the cistern, making all smooth and even by a series of almost imperceptible jerks and shakings of his wrists ; after a short time the chick is raised, and the newly formed sheet turned over on a heap beside the workman, from whence they are taken away in their wet state, and fixed against the walls of the house, both on the inside and out, for which purpose the walls are kept very clean and smooth, an appearance which cannot but strike strangers as they pass through the village, after having been accustomed to the neglected state of native houses generally prevalent in the Mahratta country. When dried they are taken down, and rubbed over by the hand with thin paste, and again dried, after which it undergoes a glazing process by means of a smooth polished stone being rubbed over the dried sheets upon the board, the form of which is slightly concave.

The better sorts of paper require a longer manipulation than the inferior kinds ; the finest kinds of all take six months preparing.

Remnants of tat puttee cost 9 rs. to 12 rs. per pulla ; old ropes, that are used for the commonest description (shurbuttee), cost 3 rs. per pulla. The soap is procured from Berar, and is bought at rs. 30 per pulla ; the soda is procured from the Loonar lake, and costs 5 rs. 12 as. 9 p. per pulla.

The quantity of soda, lime, and soap used varies with the description of paper made. For the manufacture of a ream, for instance, of the finer sorts, two seers and a half both of soda and lime are required, and seven and a half seers of soap ;

whilst for the common kinds but one seer of soda and of lime and but three seers of soap are necessary. Eight seers of tat puttee is the quantity required for making a ream of paper.

The expense of labour employed upon the better kinds of paper, as the Bahadoor Khana, is as follows for one ream :—

Eight seers tat puttee	...	...	...	...	...	...	...	...	...	Rs. a. p.
Pounding the tat puttee	...	...	...	...	...	...	...	...	...	0 8 6
Soap	...	...	...	...	...	...	...	...	...	1 3 0
Soda and Lime	...	...	...	...	...	...	...	...	...	0 2 0
Washing	...	...	...	...	...	...	...	...	...	0 12 0
Making into paper	...	...	...	...	...	...	...	...	...	0 4 6
Drying and cutting	...	...	...	...	...	...	...	...	...	0 3 0
Glazing and pasting	...	...	...	...	...	...	...	...	...	0 9 0
										<u>Rupees...5 7 0</u>

The cost of preparing three pullas of tat puttee would be as follows :—

Line...	...	...	...	...	...	...	...	...	...	Rs. a. p.
Soda...	...	...	...	...	...	...	...	...	...	1 0 0
Soap...	...	...	...	...	...	...	...	...	...	3 0 0
Wages	...	...	...	...	...	...	...	...	...	90 0 0
										<u>Rupees...166 0 0</u>

There are six sizes and varieties of paper here made, which with their dimensions and prices are here given :—

						Breadth.		Length.		Rs.	a.	p.
						Feet	Inch.	Feet	Inch.			
1.	Nizamnool khana	...	...	...	...	2	6	3	0	36	0	0
2.	Bahadoor khana	...	...	...	...	2	2	2	6	9	4	6
3.	Shaista khana	...	...	...	...	1	7	2	0	4	12	6
4.	Mooradar	...	...	...	...	1	2	1	6	1	14	0
5.	Nizamshah	...	...	...	...	1	2	1	4	1	8	0
6.	Shurbutte	...	...	...	...	2	0	1	6	0	12	0

Manufacture of Saltpetre.

The manufacture of saltpetre is principally confined to a few villages lying between Gandapoor and Byzapoor. Between these towns a tract of land exists much mixed up with calcareous earths, by the admixture of which with animal matter the spontaneous generation of nitre is greatly facilitated. The source whence this salt is obtained is the white earth, or pandree muttee, to be seen nowhere but in the vicinity of habitations, and it would seem to have obtained its compact texture and white colour from some unexplained action of the atmosphere upon a soil strongly imbued with animal matter. The nitrogen present in such earths uniting with the oxygen of the air forms nitric acid, and is immediately fixed by the potash found existing in many basaltic soils, forming by its union nitrate of potash or saltpetre.

There are two processes adopted for procuring saltpetre, the one by evaporating the solution containing the salt in large iron vessels, and the other by boiling the liquor to a certain density and then evaporating the liquor in large shallow pans or chunam beds.

The first operation is only followed during the cold months of the year. The white earth containing the salt is collected from scraping old walls and roads about the village, and a certain quantity is thrown into a shallow cistern about four feet in diameter and two feet deep; water is then poured in till it covers the earth, and is then well stirred together. After a day's digestion the water is allowed to drain away laden with saline matter, by opening a hole made for the purpose at the bottom. The lixivium thus obtained is then boiled rapidly in an iron pot for twelve hours, removing the scum as it rises, and then poured into small earthen pots to cool and crystallize, which are placed edgeways to drain; it receives no further preparation, and in this state is of a reddish brown colour.

One boiling of the iron pot in use will produce twelve seers, and the price it sells for is 10 rupees a pulla.

People necessary for the operation are three men for scraping and bringing the white earth, at two rupees a month, three men for chopping wood and bringing water, and two men for attending the furnace, and boiling, each at three rupees a month.

Wood being scarce in the part of the country where the manufacture is carried on, the operation is made dearer than it otherwise would be, each boiling consuming half a rupee's worth of fuel. The work goes on by night as well as during the day.

The other mode is adopted during the hot season, and requires a high mound of earth, at the foot of which are placed the shallow chunammed pans for evaporation, on the summit of this mound the white earth is lixiviated, and after being boiled in an iron pot is poured into channels that convey it down the sides of the mound into the pans below, depositing its earthy particles as it passes along, and when evaporated the crystals deposited are swept away and packed for sale.

Pottery.

A coarse manufacture of porous unglazed earthen pots called mutkas is carried on in every large-sized village, the process of which is as follows :—A particular sort of black clay is procured from the nullas, and tempered by admixture with horse dung and ashes, and well trodden for a whole day under foot ; the method of forming the tempered clay into vessels is by placing a lump of it upon the centre portion of a horizontal wheel, applying rotatory motion before doing so, the velocity of which is greatly increased by whirling it round briskly two or three times by means of a stick fixed in holes made for the purpose on its outer rim.

The wheel is a very simple affair, having a disc placed in the centre, sixteen inches in diameter, on which the clay is thrown for working into shape, and from the sides of which eight spokes proceed to the outer rim, whilst below there is a hole which receives the spindle it turns on, this spindle being the point of a bullock's horn let into a round stone. The entire diameter of the wheel is three feet, and its breadth three inches. The framework is made of baubul wood, the bulk of the outer rim being composed of clay, goats' hair and horse dung, altogether not weighing above forty seers.

The potter accurately guessing the quantity of clay required for his purpose detaches it from the mass and casts it on the centre of the wheel, now in rapid motion, when dipping his hands in water he works the lump up into a pyramidal form, and then down into a flat shape, repeating this until he has deprived the mass of any air bubbles it may contain. In this operation the fingers are placed inside with the thumbs outside the lump of clay, a piece of wet rag smooths the lips of the vessel, and a thin string drawn between the mould and the disc separates it from the wheel. The vessel thus shaped is now removed to a shady place to permit its drying to a particular point, when it is further prepared by being beaten into its proper form by a flat wooden mallet, it possessing in this stage peculiar tenacity admits of this hammering into shape, which is effected by placing a convex stone on its inner side, on which the hammering acts. Whilst this process is going on, the potter is continually sprinkling the beaten parts with fine rice-straw ashes ; when sufficiently beaten into form it is again put by for two days under shelter, and covered with damp sand, after which it is subjected to a further hammering, and then burnishing the surface the potter places it as before in a shady covered place to dry, and in a fortnight it is fit for burning. These pots bake black, are very brittle, breaking on the least violent usage, but their small price renders this of less consequence, a large-sized mutka costing but one pice ; their porous nature keeps water contained in them very cool.

Silk Manufacture.

There is a considerable trade carried on at Byzapore in the manufacture of silk and mixed goods called mushroo, employing one hundred and twenty-five looms in the process, and ten houses for silk-throwing. Besides these looms there are fifty also for making cotton cloths.

The raw silk is imported from Bombay at twelve rupees a seer, and when prepared at seventeen rupees a seer ; the declared value of the manufacture exported last year was Rs. 37,500, the price of 6,250 pieces.

The places the silk goods are exported to are principally to the great fair at Mahejee in Kandesh, Nassick, Nuggur, Yeola, and Parola.

The daily wages of the workpeople are four annas a man, two annas a woman, and one anna a boy ; the number of operatives employed are 112 Hindoos and 13 Mussulmans.

The number of hands required for each silk-throwing machine is five. The cotton weavers are all Hindoos, and receive four rupees a month wages.

The subject of weights and measures having been considered when reporting upon the city of Aurungabad leaves nothing to be added to what has already been given, further than stating that some discrepancies in the value of the beega were occasionally found occurring throughout the Circar ; for example, at Aurungabad, the beega is a square of 40 rods, the length of each rod being 43 inches, forming a superficial measure of 2,958,400 square inches English = 2,282.928^{sq} square yards, or very little less than half a British acre. Elsewhere it a square of 20 rods, or pands, each rod measuring 85 inches, that is a superficial measure of 2,890,000 square inches English, 2,229.1216 square English yards. There is a smaller rod in use for measuring baghaet lands, which is shorter than the above by 8 inches in every pand.

The regular established rate of interest is 8 annas per cent. per mensem amongst the saucars themselves, who increase this up to 2 rupees per cent. in times of emergency. To traders usually from 10 annas to 1 rupee per cent. per mensem is allowed, according to their degrees of credit and responsibility ; whilst from persons not engaged in trade from 12 annas to 2 rupees is demanded.

(Signed) W. H. BRADLEY, Surgeon,
8th Regiment Nizam's Infantry, on Special Duty.

BOOLDANAH, }
September 8th, 1848. }

* Erroneously stated in a former report at 2,210 square yards.

STATISTICS OF THE CIRCAR OF DOWLATABAD.

Return of the Revenue in the Dowlatabad Circar for the year 1845-46.

HYDERABAD AFFAIRS.

	Land Revenue.	Mohurtha or House and Shop Tax.	Rayer.	Arack.	Today.	Grazing felle.	Rummas.	Pine.	Mungo Groves.	Saluoe or Treenta.	Boundies.	Gross Amount.	Gaon Khureh.	Amount of Revenue appropriate after deducting the Village expenses.	Amount of Revenue alienated.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Horseod	19,706 3 6	129 0 0	....	237 6 0	176 0 0	....	584 11 0	....	187 3 6	24 0 0	4 0 0	21,086 6 0	3,610 3 6	10,177 13 8	7,398 7 3
Havalee, Anungabad	7,092 19 9	65 4 0	....	377 0 0	820 11 0	....	....	....	243 1 0	....	327 2 0	9,035 14 9	1,386 15 3	4,068 0 6	2,440 15 0
Sittarah	4,20 11 3	....	....	53 0 0	....	....	....	....	194 12 0	58 3 9	....	4,628 11 6	1,262 15 0	1,716 3 9	1,659 8 9
Waliooj and Toorkabad	52,076 11 0	725 0 8	....	....	....	....	....	....	....	....	....	52,801 11 9	7,164 1 6	42,480 6 0	3,157 4 3
Sattoonda	22,537 11 9	731 15 0	385 3 9	249 11 6	7 0 0	....	....	135 3 6	129 8 0	29 6 0	202 6 0	24,407 12 0	4,902 6 9	18,505 5 3	5,425 4 0
Kootabad	12,867 11 0	21 0 0	....	....	....	....	....	....	186 0 0	....	....	14,084 11 0	2,764 15 3	12,320 6 0	2,438 3 0
Dowlatabad	9,115 2 0	18 0 0	1,821 0 0	15 12 0	25 0 0	79 0 0	82 0 0	150 0 0	180 0 0	....	280 1 6	10,542 15 6	1,065 9 0	7,089 3 6	3,181 2 3
Elloora	17,271 9 3	362 4 0	228 9 8	160 0 0	....	....	17 4 0	20 0 0	160 0 0	41 12 3	224 13 2	18,432 4 3	3,231 12 0	12,001 6 0	6,782 5 3
Sooltaupoor	17,772 5 6	143 4 0	238 8 0	28 11 0	....	....	51 9 6	203 0 0	130 3 0	....	63 0 0	18,686 9 0	2,103 14 9	9,750 5 0	9,497 2 0
Taklee	11,369 1 3	136 8 0	41 0 0	27 0 0	....	18 14 0	....	....	52 0 0	....	....	11,646 7 3	2,149 5 3	....	15,791 1 3
Phoolmuree	70,218 12 6	469 10 0	516 6 0	30 0 0	2 0 0	....	15 0 0	289 10 0	308 3 0	....	....	71,919 9 6	10,236 10 6	45,891 12 9	3,602 13 6
Kunhur	18,874 14 3	163 3 0	3,773 9 6	1,137 4 0	12 0 0	169 4 0	....	70 4 0	231 0 0	....	170 1 3	24,005 8 3	4,148 1 6	18,354 9 3	....
Gowtala	416 1 6	....	....	....	....	....	....	....	....	....	....	416 1 6	75 13 9	340 3 9	....
Untoor	52,631 2 6	462 4 9	872 13 6	238 8 6	5 0 0	450 0 0	....	35 4 0	728 0 0	....	....	56,487 0 9	9,884 4 0	40,691 7 0	5,910 5 9
Khanapoor	8,052 15 9	154 8 3	327 11 0	34 2 8	....	19 0 0	....	....	4 6 0	....	....	8,592 11 6	1,606 0 0	6,805 3 0	1,191 8 6
Khundala	12,571 6 3	124 8 0	898 0 0	....	....	23 6 0	....	....	....	21 0 0	....	13,386 4 2	1,988 10 0	11,349 10 3	....
Gandapoor	78,169 8 0	845 11 6	2,625 8 3	48 0 0	....	16 0 0	....	83 8 0	13 0 0	21 0 0	....	81,825 3 9	12,407 8 9	66,040 13 6	3,176 12 6
Ryzapoor	39,489 10 0	1,320 9 9	1,467 0 0	30 0 0	12 0 0	....	....	98 2 0	....	186 0 0	....	42,320 5 9	11,421 14 0	28,718 6 3	2,380 1 6
Total..	4,56,228 6 6	5,72 11 0	12,700 5 6	2,674 7 0	568 11 3	775 8 0	680 8 8	1,031 15 6	2,826 4 6	350 6 0	1,271 0 0	4,83,010 6 3	81,112 0 9	3,29,965 5 9	77,832 15 9

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Return of the Live and Dead Stock in the Circar of Dowlutabad, Soobah Aurungabad.

Number.	Buffaloes	Goats.	Horses	Tattors	Cattle.	Asses.	Sugar	Oil	Mi
40,207					444	362			
13,377							0.30	1.36	
1,068									
11,795									
2,354									
36,168									
30,793									

Return of principal Vegetable Produce, its Value, and Quantity of Land cultivated in the Circar of Dowlutabad, Soobah Aurungabad.

PRODUCE.	Quantity of Land.		Quantity of Produce.			Value of Produce.		
	Beegas.	Panda.	Pullas.	M.	S.	Rs.	a.	p.
Sugarcane	2,357	2½	2,609	0	0	38,555	3	5
Wheat	89,094	15	32,008	0	30	2,26,230	0	0
Bajree	1,97,923	18	59,772	2	20	2,87,996	0	0
Jawaree	1,42,069	18½	40,997	0	0	1,89,272	0	0
Opium	936	12½	11	2	1½	8,621	0	0
Orceed	2,033	12	892	1	10	3,563	0	0
Gram	40,139	15	13,798	1	3	94,130	0	0
Toor	19,113	13	5,009	1	10	23,672	0	0
Tillee	5,503	7½	1,291	0	10	6,385	0	0
Kuldee	18,648	14½	6,602	0	24	22,294	0	0
Rice, uncleaned	4,149	9	2,160	1	5	10,044	0	0
Peas, country	394	13	159	2	20	633	0	0
Tobacco	2,122	19	564	1	30	6,236	0	0
Moong	3,218	16	1,056	0	20	3,764	0	0
Hemp	3,457	0	1,045	2	20	7,045	0	0
Karleh	816	10	166	1	20	501	0	0
Mukkai	150	10	51	0	0	76	0	0
Fruits	324	1	269	0	0	2,502	0	0
Vegetables	481	0	.....	...	...	1,707	0	0
Cotton, uncleaned	527	13	213	0	20	1,284	0	0
Turneric	49	12	30	2	0	413	0	0
Kooltheo	822	16½	38	0	0	48	4	0
Chillies	50	0	15	0	0	120	0	0
Indigo	13	5	1	0	39	98	12	0
Dill Seed	220	0	40	0	0	140	0	0
Ralla	3	0	3	0	0	6	0	0
Linseed	100	0	20	0	0	60	0	0
Betel Leaves	35	0	.....	...	...	254	0	0
Ground Nut	50	0	38	1	20	133	8	0
Total	5,34,807	12½	.....	...	...	9,35,791	15	6

HYDERABAD AFFAIRS.

Return of the Population of the Circar of Dowlutabad, Soobah Aurungabad.

HINDOOS.					Amount.	MAHOMEDANS.					Amount.
Brahmin ...	...	...	...	...	3,065	Shaik ...	...	...	...	...	3,831
Purdai-ee ...	...	...	...	...	1,439	Syed... ..	...	...	...	...	552
Bunniah ...	...	...	...	...	1,778	Moghul ...	...	...	...	...	112
Byragee and Gosai ...	...	...	...	...	580	Pathan ...	...	...	...	...	1,023
Bhat ...	...	...	...	...	75						
Kanarra ...	...	...	...	...	88						
Hulwai ...	...	...	...	...	79						
Coonbee ...	...	...	...	...	25,675						
Malee ...	...	...	...	...	142						
Rhatia ...	...	...	...	...	130						
Gooroo ...	...	...	...	...	65						
Durzee ...	...	...	...	...	449						
Jungum ...	...	...	...	...	13						
Kussar ...	...	...	...	...	183						
Sonar ...	...	...	...	...	674						
Lohar ...	...	...	...	...	300						
Burruhee ...	...	...	...	...	487						
Koombhar ...	...	...	...	...	447						
Dhungur ...	...	...	...	...	1,344						
Rongriz ...	...	...	...	...	92						
Kostee ...	...	...	...	...	407						
Sallee ...	...	...	...	...	133						
Kullal ...	...	...	...	...	84						
Thunbolce ...	...	...	...	...	27						
Bunjara ...	...	...	...	...	45						
Kolee ...	...	...	...	...	238						
Josee ...	...	...	...	...	6						
Hujjam ...	...	...	...	...	526						
Bhoee ...	...	...	...	...	102						
Mullaure ...	...	...	...	...	19						
Manbhaw ...	...	...	...	...	21						
Tormullee ...	...	...	...	...	4						
Baildar ...	...	...	...	...	7						
Tailee ...	...	...	...	...	836						
Dhobee ...	...	...	...	...	322						
Loharra ...	...	...	...	...	2						
Wattara ...	...	...	...	...	4						
Tuckarra ...	...	...	...	...	20						
Jeengur ...	...	...	...	...	17						
Burrood ...	...	...	...	...	34						
Kussai ...	...	...	...	...	23						
Putwai ...	...	...	...	...	4						
Bhamta ...	...	...	...	...	4						
Kykaree ...	...	...	...	...	7						
Bheel ...	...	...	...	...	389						
Dohur ...	...	...	...	...	42						
Chamar ...	...	...	...	...	876						
Dhair or Mhar ...	...	...	...	...	4,445						
Mang ...	...	...	...	...	936						
Total...					46,690	Total...					5,518

Return of Average Prices of Grain from 1842 to 1848 inclusive in the Circar of Dowlutabad, Soobah Aurungabad.

GRAIN.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Goor ...	10 13 3	10 10 9	12 5 1	13 13 10	15 2 0	14 0 0	13 0 0	Per pulla.
Wheat ...	2 9 8	2 15 3	3 4 8	4 12 4	7 0 5	4 8 0	2 12 0	
Baj-ee ...	2 1 3	2 3 9	2 8 9	3 8 5	4 9 10	3 0 0	2 4 0	
Jowarce ...	1 7 5	2 0 7	2 3 11	3 4 10	4 3 7	3 0 0	2 3 0	
Opium ...	4 9 8	4 12 0	5 4 0	5 6 2	6 2 6	5 0 0	4 12 0	Per aeer.
Ooreed ...	2 5 11	2 9 8	2 14 0	3 2 4	4 2 3	3 0 0	3 0 0	Per pulla.
Gram ...	2 8 5	2 13 0	3 3 4	4 4 4	6 11 7	5 0 0	3 0 0	
Toor ...	2 3 8	2 7 4	2 13 6	3 12 2	5 1 7	4 0 0	2 0 0	
Titlee ...	3 3 5	3 7 9	3 11 7	4 6 6	5 12 2	5 0 0	4 8 0	
Kuldee ...	1 12 5	1 15 10	2 5 4	2 12 5	3 5 8	3 8 0	3 0 0	
Ittee, uncleaned ...	3 5 0	3 4 0	3 8 10	4 1 7	4 10 9	4 0 0	3 12 0	
Peas, country ...	2 3 10	2 4 8	2 7 7	2 13 8	4 3 8	3 0 0	2 8 0	
Tobacco ...	6 5 9	7 0 0	7 12 7	8 11 10	9 2 10	8 0 0	8 0 0	
Muung ...	2 7 10	2 11 10	3 1 6	3 10 0	4 7 3	3 0 0	3 0 0	
Hemp ...	4 6 1	4 8 3	4 13 0	5 7 8	6 3 9	4 0 0	3 8 0	
Kar-h ...	1 11 2	1 14 9	1 15 0	2 2 9	3 0 8	2 0 0	2 0 0	
Mukkat ...	1 2 0	1 2 7	1 2 7	1 2 7	1 8 0	1 0 0	1 2 0	
Fruits, &c. ...	3 8 0	3 10 8	4 2 8	4 4 0	4 0 0	3 0 0	3 0 0	
Vegetables ...								No fixed rate.
Cotton, uncleaned ...	9 4 8	10 13 1	12 4 8	11 8 0	8 10 8	7 0 0	6 0 0	
Turmeric ...	8 5 4	9 5 4	10 0 0	13 10 8	14 8 0	12 0 0	11 8 0	
Konthee ...	1 8 0	1 8 0	1 2 6	1 6 0	1 8 0	1 6 0	1 4 0	
Chillies ...	7 8 0	8 0 0	6 12 0	6 8 0	8 0 0	10 0 0	9 0 0	
Indigo ...	2 8 0	2 0 0	2 0 0	1 8 0	1 4 0	2 0 0	1 12 0	Per aeer.
Dill seed ...	2 12 0	3 0 0	3 4 0	3 8 0	3 8 0	3 0 0	2 12 0	Per pulla.
Ralla ...					2 0 0	2 0 0	2 0 0	
Linseed ...					3 0 0	3 0 0	3 0 0	
Betel Leaves ...								No fixed rate.
Ground Nut ...	3 0 5	3 0 5	3 0 11	3 8 0	5 0 0	4 0 0	3 8 0	Per pulla.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Return of the Annual Consumption of Iron and Salt in the Circar.

Designation.	Average Value by weight.	From whence brought.	Quantity.	Value.	Remarks.
Iron.			Pallas M. S.	Rs. a. p.	
Europe, 1st quality ...	3 Seers per rupee	Bombay and Nirmul	{ 44 1 17 381 0 19 178 0 34½	1,762 13 8 6,666 13 10 5,309 10 0	
Europe, 2nd quality ...	7 do. do.				
Native	4 do. do.				
Total...	.....	.....	603 2 31½	13,739 5 6	
Salt	8 Rupees per Palla	Bombay and Bhewndy	11,607 1 23	92,860 3 2	Computed at 3 seer per head.

Return of the State of Education in the Circar.

Schools.			
Persian.	Mahratta.	Number of Pupils.	Persons able to read and write.
5	56	813	3,627

Return of the principal Diseases, and Deaths, in the Circar of Dowlutabad, Soobah Aurungabad.

eprosy of Joints.	Leprosy of Skin.	Elephan-tosis.	Guinea Worm.	Stone in the Bladder.	Blind.	Idiot.	Mad.	Lame.	Deaf.	Small-Pox.	Cholera.	Fever.	Other Diseases.	Total.
115	69	53	96	7	415	5	32	30	23	1,028	2,547	591	1,805	5,971

Return of Seebundeeds and Sepahis employed in the Circar.

Sebundeeds and Sepahis.	Suwaris.	Foot.
	46	872

Meteorological Table for 1847 taken at Aurungabad.

	Sunrise.	9 A. M.	3 P. M.	6 P. M.	9 P. M.	Winds.	Rain.	Diurnal Range.
	°	°	°	°	°			°
January ...	57	69	79	75	70	E.S.E.	0-600	22
February ...	46	67	86	72	62	N.E.	.....	40
March ...	68	80	89	82	80	N.E.	.....	21
April ...	78	87	97	87	86	N.E.N.	0-120	19
May ...	83	91	91	95	90	N.E.N.	5-690	16
June ...	77	80	85	87	79	S.W.N.W.	7-850	10
July ...	75	78	85	83	77	N.W.	6-780	10
August ...	73	76	83	80	75	N.W.	2-390	10
September ...	72	75	79	75	72	N.W.	18-310	7
October ...	69	79	85	80	79	N.N.E.N.W.	1-900	16
November ...	62	70	77	76	70	N.E.S.E.	1-860	15
December ...	55	74	78	77	73	S.E.,N.E.	.....	23
Mean ...	67	77	85	80	76		44-000	

Mean annual temperature 77°.

W. H. BRADLEY, Surgeon,
8th Regiment Nizam's Infantry,
on Special Duty.

BOOLDANAH, }
8th September 1848. }

(MADRAS JOURNAL OF LITERATURE AND SCIENCE, No. 37, Jan.—June 1850.)

I.—STATISTICS OF THE CITY OF AURUNGABAD. By A. WALKER, M.D.,
Surgeon of His Highness the Nizam's Army, on special duty.

Aurangabad is better known at the present day as having once been the capital of the Nizam Shahee dynasty than from any importance of its own, either in a political or commercial point ; it is now but the chief city of a district of the same name forming a portion of the Nizam's dominions. It was originally called Khirkee, from the village on whose site its first foundations were laid, then changed to Futteh-nuggur, and finally to its present one by Aurungzebe on selecting it as his residence.

Name capital of the Nizam Shahee dynasty than from any importance of its own, either in a political or commercial point ; it is now but the chief city of a district of the same name forming a portion of the Nizam's dominions. It was originally called Khirkee, from the village on whose site its first foundations were laid, then changed to Futteh-nuggur, and finally to its present one by Aurungzebe on selecting it as his residence.

Wall. A terraced wall, of solid masonry, encircles the town, of no great height, in many parts not even exceeding fourteen feet. The battlements are loopholed and lofty ; over the gateways, and at certain places around the walls, the merlons are frequently observed to be machicolated ; semicircular bastions surmounted by towers occur at each flanking angle, and at regular intervals along the works. A few heavy honeycombed guns are to be seen mounted on the towers generally at the gateways, but the carriages on which they traversed have long since rotted beneath their weight, and left them on the ground. The walls have neither ditch nor moat, the manifest object for their erection having been merely as a means to repel the aggressions of plundering horse, and are in no ways adapted to sustain the approaches of a regular siege. The walls are pierced by thirteen gateways, exclusive of a small postern wicket.

Gateways. The four principal entrances face the cardinal points and are respectively the Mecca gate to the west ; the Khas or Jaulna gate to the east ; the Delhi gate to the north ; and the Puttan gate to the south ; besides these there are the Jaffier, Khirkee, Borrapool, Mahmoud, and Roshen gates ; as well as four others, now permanently closed or walled up, whose names are the Khyzree, Khud Ghur, Mada and Koomhur gates : the Borrapool entrance was also closed until the last few years in consequence of its unprotected position, having formerly been taken advantage of by Pindarrees, and forced.

Travelling distances to Bombay 215 miles, to Calcutta 963 miles, to Madras 690 miles, to Hyderabad 303 miles, to Nagpoor 286 miles, to Poona 144 miles, to Toka, the nearest frontier boundary, 28 miles.

Post Office distances from principal places. It is situated in $19^{\circ} 53'$ north latitude and $75^{\circ} 29'$ east longitude. Aurungabad stands within one of those innumerable valleys formed by off-shoots from the Sichel range projecting into the plains of the Godavery ; two stony ridges running parallel to each other form its limits upon the north and south, their composition is the softer amygdaloid description of rock common to the surrounding table lands, through which basaltic strata are seen disposed in an undisturbed horizontality, giving those appearances of terraced stratification generally conferred by lateral and alluvial deposits. The highest point of these hills has been ascertained, trigonometrically, not to exceed 667 feet above the level of the valley ; whilst the sea level of the latter is about 1,100 feet, as deduced from the boiling point, which corresponds with the altitude of adjoining hills, whose elevations above the sea have been obtained in a more scientific manner. The valley has a general breadth of about 10 miles ; towards the east the horizon is open, but on the west the northern range deflects, and curves in towards the city, sending a spur close upon its suburbs, causing great inequalities of the surface in that direction ; along the basis of either range the soil is shallow and very rocky, supporting but a scanty vegetation with stunted appearance of trees and shrubs ; whilst towards the centre it deepens, and becomes rich and fertile, fed by the running streams common to these valleys.

Latitude and longitude position. Such being the principal features of its physical geography, we are in a position to understand the causes of its climatic phenomena, which are found to consist mainly in great diurnal vicissitudes of temperature ; an unequal monsoon ; and dry and strong easterly winds for a considerable portion of the year. During the rains the climate is the

most agreeable that can be imagined, but the desiccating nature of the easterly winds at other seasons is trying and distressing to delicate constitutions, though to those who are acclimated it is not complained of ; this disagreeable wind prevails for the most part towards the close and commencement of the year ; the vicissitude in the daily temperature at this season is most excessive, the

Diurnal Range in
Cold Season.

Maximum Temperature.

Mean Annual
Temperature.

Monsoon.

State of Salubrity.

thermometer at sunrise sometimes being as low as 46° , and rising by 2 o'clock to 86° , making a diurnal range of 40° ; during the hot months the maximum range of temperature was observed to occur on the 22nd of May, when the thermometer stood at 106° in the shade between 2 and 3 o'clock ; the minimum range for this season was 78° , giving a range of 18° for the whole hot weather. The mean annual temperature was 77° . The last monsoon proved most abundant, there having fallen as much as 44 inches altogether ; the greatest fall occurred in September, when the pluviometer registered 18.30 inches.

The city has obtained the repute of being unhealthy, which need not be wondered at, seeing that a great portion of its buildings are below the level of the marshy lands and tanks resting upon its northern wall, whilst ventilation is impeded by a profusion of rank vegetation that the moist condition of the earth gives rise to. The porous nature of the amygdaloid rock which upholds these marshes allows a constant infiltration to go on, which escaping towards the city keeps it in an unwholesome state of dampness ; this natural evil has also been augmented by the heaps of ruined walls, choked-up gardens, and broken aqueducts that abound on all sides, impeding a free circulation, and engendering miasma. Intermittent fevers are nearly always present, which as the rains commence begin to be severe, and increase in intensity as the cold season approaches, from the drying up of the marshy lands, both within and without the city. Were the poverty of the greater portion of the community not so excessive, much of the present sickness might, however, be avoided, by the simple precautions of better food and clothing. That the insalubrity of the city depends solely on local causes may be inferred from the fact of the British cantonment enjoying an immunity from disease, though only separated by the small river Gunda.

Site.

The site of the city occupies very uneven ground ; basaltic dykes are seen in all directions along the slopes and bases of the hills, ridging the surface of the soil. At the north-east angle of the town wall one of these dykes may be observed protruding itself from its softer amygdaloid bed, and forming a convenient foundation for the city wall which has been built up it ; from the tower placed upon the corner bastion a general and unobstructed view may be obtained of the whole city and environs ; below is seen the town, partly lying in a hollow, and partly covering the high grounds rising all around, excepting towards the north-east and south-west, which is the direction of a valley intersecting the town, and at the bottom of which a perennial stream meanders. The buildings are nearly concealed by thick foliage, and were it not for, here and there, a dome or minaret peering out the observer might imagine he was gazing upon a forest ; beautiful clumps of mango and tamarind trees upon the outskirts increase the illusion ; seldom indeed is a more varied and beautiful landscape seen than here is presented ; the palms and minarets scattered about the town confer a character peculiarly Eastern upon the scenery, but the enchantment is dispelled on a closer inspection. Looking westward beyond the city walls the British cantonment is seen occupying a large space of ground, and further in the distance two or three isolated hills are observed cutting the horizon, on the summit of one of which stands the remarkable fortress of Doulatabad, behind which the bluff head-land of the northern range fades away into misty indistinctness.

Form, length and
breadth, circumference.

The form of the city is parallelogramical, the greatest length being two miles and a half diagonally from north-east to south-east, and one mile and a quarter from north to south, the whole circumference slightly exceeding six miles.

A careful enumeration of houses gives a return of the city and suburbs as 7,131, of which 5,038 belong to the city, and 2,093 to the suburbs. Brick houses of one story constituted

Houses.

nearly the half of the gross amount, whilst chuppered huts fell very little short, leaving but one-eighth for houses of the better sort, containing from two to four stories. The general style of building adopted is a wall of kiln-burnt bricks, with a sloping tiled roof; very generally the front is formed of wood-work, and in the houses of many of the richer merchants this frontage displays a great deal of clever workmanship by the way the screens and pillars are carved; elaborate patterns of foliage cover the panels, and quaint corbelled cornices support projecting balconies and pent roofs; the best specimens of these buildings are to be seen in the neighbourhood of the Shah Gunj, and in Begumpoor. The houses of the higher classes are generally enclosed quadrangular spaces having much of the enclosure occupied with gardens, tanks, open aqueducts and fountains; with one or two exceptions all the houses of this description are in rapid progress to decay, and present a wretchedly dilapidated appearance.

The chowk or public marketplace is placed nearly in the centre of the town, and a market is held every afternoon; it is a square space, towards which all the great thoroughfares converge. On one

Markets.

side is a range of shops kept by Borahs, in which European articles are exposed for sale, but the whole of these are of a mean description. Spacious streets leading to the several gateways were the bazars in former days, which the altered circumstances of the city have now destroyed. The Shah Gunj is a handsome quadrangle, the centre occupied by a large musjid, whilst verandahed shops surround the sides. In the vicinity of this square are to be found the dwellings of former wealthy merchants.

The leading thoroughfares have been paved, more especially at those places where the activities required this precaution; the occasional assistance from the convicts tends to keep them in tolerable

Streets.

repair and cleanliness, but this, however, only refers to the larger thoroughfares; in the narrow lanes and bye-streets the gutters are disgusting, and filth allowed to remain in a most offensive condition.

Across the Bhan Khan nulla, which is the name of the stream that flows through the centre of the town, several strong stone bridges have been built, whilst three of a more massive description have been thrown across the Gunda nulla, that separates the city from its suburbs on the west.

The inhabited portion of the town is now confined to no more than a fifth of the enclosed space, over the remaining portion ruined houses are interspersed amidst fields of tobacco and other vegetation; an abortive attempt some forty years back to rear the cochineal insect has entailed a serious evil by the introduction of the *Opuntia* as its food. The plant has now taken undisturbed possession of the ruined holes and corners, giving covert to all sorts of nuisances. Amongst the heaps of ruined walls and buildings the remains of its former palaces are still discernible, the most conspicuous of which are those of Asoph Jah's, Nizam Ali's and Malik Amber's, the sites of which are marked by their proximity to the Burkull; between the Puttun and Jaffer gates are seen the ruins of Mooneer-ool-Moolk's and Govind Buksh's mahals; that of Aurungzebe's, called the Killa Ark, extends nearly from the Delhi gate to the Mecca entrance; two buildings alone remain of the original pile—the musjid of the palace, small in dimensions, but elegant in design, and the garden pavilion, in which is shown the Tukht or throne of Aurungzebe: this has a rostral appearance, and is entered by means of a gallery behind, the whole being of a plain and simple description; here the emperor was used to sit, and afford his subjects opportunities of approaching him.

Amongst the musjids there are none of any note, nor needing more particular comment; the Jumma musjid and the Kala musjids were built by Malik Amber, that of the Shah Gunj by Aurungzebe.

Musjids.

Tombs and rousahs cover the environs, shrouded in a wilderness of custard apples and Poinciana bushes. In the suburbs of Begumpoor stands the exquisitely beautiful mausoleum dedicated by the Prince Azum Shah to the memory of his mother, the Begum Rabia Dourance, and wife to Aurungzebe. The architect's name who erected this tribute of filial piety was Ataullah. It stands within an enclosed area 500 yards long and 300 broad, which is laid out in the better style of Eastern gardens, the straight paths having their uniformity broken by aqueducts and fountains. A handsome portal entrance closed by folding brass doors covered with a running foliage pattern occupies the middle of the southern wall, above which is a gallery for music ; in the centre of the three remaining sides open pavilions are built from which broad tessellated pavements lead to the tomb placed in the centre of the enclosure ; this rests upon a raised platform of polished red porphyritic trap, having tall slender minarets springing from either corner ; a winding staircase passes up the one at the south-western angle, provided with a projecting balcony below the lantern.

The body of the tomb is square, with a lofty pointed arch extending nearly the whole height on either side ; above rises in graceful outline a magnificent marble dome from amidst a cluster of smaller ones, four in number ; at each corner minarets are placed ; a flight of stone steps lead from the garden to the platform, round the edge of which runs a balustrade of the same red trap. From the platform steps descend into the body of the building, where the sarcophagus is placed surrounded by screen work of perforated marble ; another entrance leads directly from the platform into a gallery running round the interior, from which you look down upon the royal tomb, on which is shed a soft and solemn light streaming through the apertures of the marble tracery of the windows ; this manner of admitting light from above is highly effective ; the materials that have been employed are white marble for the cupola and upper portions, with a beautiful micaceous cement for finishing the lower part ; this cement has all the appearance at a little distance of the purest alabaster. A musjid stands on the platform on the west side. The marble was procured from Jyepoor. On the authority of Gholam Mustafa, the Moonshee of Aurungzebe, who with his son Inayut Ali wrote the Tawarikh Nameh of Aurungzebe's reign, the total cost of the building was but 6 lacs, and Rs. 68,203-7-0, but this sum appears so small that I cannot but suppose there must be some error.

There is another handsome tomb to be seen upon the Hursool road, erected to the memory of Islam Khan, but its tanks and fountains are all in ruins, and large trees are throwing up their gnarled and destructive roots amongst the masonry of the walls, so that ere long it will soon be destroyed altogether.

Amongst the crowd of memorials to the unknown dead, a group of remarkable tombs are seen off the road between the Puttun gate and the Cavalry lines ; these are the graves of Armenians, and are about 50 in number ; some of the inscriptions are surmounted by a cross flory, whilst others have what is termed a Jerusalem cross ; on one or two were two rosettes, which indicated that the individuals had made the pilgrimage to Jerusalem. In Aurungzebe's time these people constituted a wealthy and considerable class of the community ; there are none now remaining.

In Begumpoor is to be seen the old European burial ground, containing about twenty tombs, all in good preservation.

Education is of the commonest description, and confined solely to the acquirement of such knowledge as shall render the person able to transact ordinary business. The Persian language is taught in Muktul Khanas, which are all private, and generally held in the houses of the richer Mahomedans, where one meanjee or teacher instructs a small class. The Mahratta puntojee instructs his pupils in sals, or public schools, where Guzerattee is taught as well as Mahratta ; the puntojee is obliged to rest satisfied with a very trifling recompense, averaging

about 4 annas monthly from each pupil ; reading, writing, and arithmetic only are taught at sals, just sufficient to prepare the person for the office or shop, where he obtains all necessary knowledge that may further be required. The meanjee's attainments, being of a higher description receive a corresponding remuneration, and vary from 2 to 10 rupees for each pupil monthly. The Mudrussa, built by the enlightened founder of the city, serves for the purpose of the gaol. Subjoined is a table of the number of schools and scholars :—

Mahratta schools	18	...	...	...	...	...	...	Pupils	328
Persian ditto	21	...	...	...	...	...	...	ditto	83
Gujerati ditto	3	...	...	...	...	...	...	ditto	225
Total...42									636

Three native daks leave the city daily for Hyderabad, Berar, and Booranpoor ; excepting the mail be an express, it is not usual for the runners to proceed through the night ; when, however, the case is urgent, a small bell is attached to the despatches, signifying all possible haste to be observed, and the runners travel night and day ; it is customary to affix hieroglyphics designating the different large towns, which are all well known and recognized by the runners.

Five jutrass are held in the course of the year :—the Khundobah juttra at Kurrumpoor in March ; the Puchumba juttra at Gungabaree every Tuesday in July ; the Surawun Somewar juttra, near the Puttun gate, four days in August ; the Hursoolka Nahna juttra, one day in December ; and the Pola Ballajee juttra, near the Jaffier gate, one day in September.

The supply of water to the city is very abundant, and quite beyond its present requirements ; a large stream called the Gunda nulla, swollen by the monsoon into a rapid torrent, washes its western walls ; whilst a smaller stream named the Byan Khan nulla passes through the centre of the town ; the sources of both are derived from the ranges on the north ; besides these streams aqueducts convey a never-failing supply from the waters that pour down from the hills, and which are conveyed to the city with much ingenuity and labour by means of stone conduits, to be dispersed around by innumerable pipes. This lavish supply afforded abundant material for the inhabitants to indulge their inclinations in their passion for fountains and water works ; so numerous were these in former days that Aurungabad was described as the city of fountains. One of the finest aqueducts conveys water from the streams below the hills to the reservoir opposite the Mahmud gate, or more frequently called the Punchukkee gate, from the circumstance of a small watermill being attached to the reservoir : the waters supply the fountains of the Fuqeer Shah Moozaffer's tomb ; another handsome aqueduct supplies the cistern within the Begumpoor gate : this owes its origin to the conscientious scruples of a soucar, in whose hands had been placed the property of many who had fallen in the disastrous battle of Paniput ; these were consecrated to the public welfare by forming this noble aqueduct ; owing to the disinclination of the Government to allow his conduit to pass too close to that of the Fuqeer he was necessitated to carry it through the shoulder of the hill east of the Begum tomb, at an additional cost, it is said, of a lac of rupees ; there are various other conduits to be seen near the Delhi gate, and also upon the southern side of the town. In Aurungzebe's time a large marsh or tank extended the whole length of the northern wall, but, the exhalation and dampness it occasioned proving unhealthy, he caused that portion that immediately lay in front of his palace to be filled in and converted into fields and cultivation, leaving the small portion beyond the Delhi gate, known as the Khyzree Talao ; it is much to be regretted that the whole had not been filled in. Until within a few years, a considerable quantity of water was confined in the hollow lying between the palace of Aurungzebe and the Mecca gate, but the bund was purposely destroyed, lest the town should be flooded ; it was called the Kunwul or Lotie's Talao and was fed by a spring ; the stream that flows from it passes by the Jumma musjid to the S. W.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

angle of the wall, under which it passes, and, almost directly after, falls into the Gunda nulla. The rice grown upon the marsh lands is celebrated for its excellent quality, and is in great request.

My attempt at obtaining a census having proved abortive through the insuperable difficulties thrown in my way by those only who could have assisted me, I have been reduced to the necessity of depending upon conjecture for my results, but this has been effected in so guarded a way that I have little hesitation in saying that as far as a proximation may be relied on it will be found perfectly trustworthy. The plan I adopted was to count very carefully the whole of the houses, dividing these into stories, and allowing five persons to each house containing one story, and four to every story of the remainder. The returns thus obtained are here shown :—

	Stories,				Kutcha Pucka.	Chupper.	Total.
	4	3	2	1			
Houses	4	137	723	2,974	361	2,932	7,131
People in each house	16	12	8	5	5	5	
Total ...	64	1,644	5,784	14,870	1,805	14,660	38,807

These averages were obtained from competent authorities, whose long residence in the city rendered them familiar with its habits. If we take into consideration, in addition to what is here set down, the floating population composed of travellers, camp followers, and mendicants, &c., whose numbers are always fluctuating, and also the occupants of religious buildings not enumerated, we may safely estimate the whole in round numbers as about 40,000. In Hamilton's Gazetteer the population in 1825 is reported as being about 60,000, which agrees with my own observations, for since that time the numbers have been gradually diminishing, and lately this abandonment has been very great, particularly amongst the most useful of its classes, as weavers, goldsmiths, lohars, and durzees; amongst the number must be included many borahs, whose departure is certainly significant, as their habits and keenness in trade enable them to thrive where others starve. The proportion of Mahomedans to Hindoos is, I am informed, about one to four.

The city was founded about the year 1616 A.D., by the famous Malik Amber, an Abyssinian by birth, and minister to Sultan Moorteza Shah of Ahmednuggur; owing to the additions by conquest, this kingdom had become one of the largest of the Dukkun, and a removal of the court further into the interior had become necessary; for this purpose Doulutabad had been first selected as a convenient position for the new capital, but struck with the more agreeable locality of the small hamlet of Khirkee, close in its vicinity, Malik Amber determined upon laying the foundations of his new metropolis on its site, and forthwith commanded his army to build themselves habitations, whilst he erected a substantial palace upon the summit of the rising ground, to which he gave the name of the Noor Kunda; the massive portal gateway, over which the Nowbut Khana sounded, leading to this, was called the "Bahar Khool," and is now a very conspicuous object, still called the "Burkull." In the course of ten years' time the village or Khirkee had become a populous and imposing city, but the illustrious founder, more eminent as a statesman and financier than as a warrior, was not able to prevent the calamity of fire and sword from devastating his new capital, an injury inflicted upon it by Shah Jehan's army; whilst he himself fled to his old city, where he shortly afterwards died. He was succeeded in power by his son Futteh Khan, but none of his wisdom or talent was to be found in his successor. He directed his father's new city to be called Futtehnuggur, after himself, but was not permitted long to enjoy his new dignities, the Mogul Emperor removing him for his repeated acts of treachery. Aurungzebe on being sent to the Dukkun by his father (A.D. 1657), as the Viceroy, chose Malik Amber's new city as his residence, and building palaces for himself and nobles, and surrounding the whole

with its present wall, he desired it should henceforth be called Aunungabad. Upon his death in 1707 it followed in the general wreck of the Mogul empire, and from that moment may virtually be considered to have ceased to be an integrant portion of the empire. Nizam-ool-Moolk established himself as the sole ruler of the Mahomedan conquests south of the Nerbudda, and in 1727 removed the court to Hyderabad, since which period, though deprived of its former dignity and importance, it is still a town of some consequence, and the capital of a considerable district.

Manufacturing Industry.

The manufacturing industry is principally confined to the production of kincob, mushroo, gold and silver lace, brocade, and embroidery. Borahs are the sole proprietors of the kincob looms, employing Hindoos or Mussulmans as workmen; there are seven houses of kincob manufactories, amongst which are about 16 looms; each loom requires two men and two boys; workmen receive 12 annas per day, and boys 2 annas wages. The value of the loom is seven rupees. The amount of kincob yearly manufactured is estimated at from 50,000 to 60,000 rupees, the principal of which is sent to Hyderabad, and for which place the whole of the looms are now executing goods on commission; a small quantity is sent to Madras. The same class of people manufacture gold and silver lace, of the broad and narrow kind, called nukkíe, gota and kenari, the value of which is estimated at 15,588 rupees for the past year.

Nukkíe.
Gota.
Kenari.
Gold Lace.

The manufacture of brocade or tash employs about 50 workmen, the whole of whom are Mahomedans; the warp is of coloured silk, the woof of gold or silver thread; a single length of the tash is called a tat and is of two breadths, but both are equal in length; a tat 30 yards long and a yard broad takes 15 days making, and weighs 100 tolas. The other size is but half a yard broad, weighs 50 tolas, and takes 8 days to prepare. Each loom requires the attention of two men and a boy, who between them can make 7 tolas a day; one rupee is paid the workmen for making 8 tolas, and sells for 2 rupees 3 annas a tola.

Brocade,
Tash.

The gold and silver wire makers are called Tarkush; at present there is but one house that makes this article, employing about 25 men in the operation; silver bars or "lugree" as they are called, weighing 40 tolas, are coated with gold leaf to the amount of from 5 to 8 mashas, and then made to pass through a succession of gradually diminishing holes drilled in a plate of steel, called a partee or draw-plate, until the bar of metal, which was originally but ten inches long, has been extended to 220 yards; the intense pressure employed to effect this renders it very brittle, and the process of annealing is frequently required to restore its ductility, which is merely placing it in hot ashes in a pan. The instrument for drawing the wire is called a jumba, and is a large pair of nippers, having the inner blades made rough like a file, to assist it the better in grasping the wire; a ring passes over the handles, to which a strong chain is attached and fastened to a windlass worked by the hands and feet; the chain and wire wind round the roller of the windlass, and are again wound off on a small reel, called a fulka; this operation has to be repeated about 40 times before it acquires the requisite dimensions; a coil of wire thus prepared is called a pasa, and the workmen receive 2 annas wages for their trouble; two men can make 5 pasa a day. This business has much fallen off of late, there not being now a fourth of the number there were a few years back.

Gold Wiremakers,
Tarkush.

The Taneah or fine wire drawer lengthens the pasa of 220 yards into 40,000. The holes in the draw-plate are required to be made with great exactness, and for this purpose a fine steel-pointed awl is employed for drilling the aperture, whilst the workman is provided with a light hammer having a tapering head with which, with the aid of a small anvil fixed on the draw-bench, he narrows the holes when abraded by friction.

Taneah, fine Wire
Drawers.

The machine or draw-bench for making the fine wire is a four-legged low stool provided with a small horizontal draw-wheel round which the wire passes from a bobbin on a spindle at the further end ; a steel draw-plate is fixed between these two points, through which the wire passes ; a handle fastened to the upper part of the drum moves it round. The whole cost of the apparatus is about 7 rupees ; after becoming sufficiently fine it is fit for the brocade or kincob manufacturer ; or, if required for gold thread, it has to undergo the operation of flattening and is then termed badla. Six or eight bobbins having fine gold wire

Badla flat, wire.

wound upon them are fixed on spindles on a frame, the ends of the wires being made to pass between two sticks placed upon the edge, or led over the polished surface of a steel anvil, and there receive a slight blow from a small hammer whose face is equally highly polished ; as it becomes flattened it is drawn along. The Taneahi's wages are by the piece ;

Fine wire.

for 40 tolas he gets 8 rupees 8 annas, which he can accomplish in a month ; it sells for 2 rupees a tola. There are 20 houses employed in this work, comprising about 300 workmen. The principal exportation of this article is to Hyderabad: 20,000 rupees, worth, are said to be consumed in the city, and 1,500 rupees, worth exported. Badla sells

Flat wire.

also for 2 rupees a tola ; the wages for making ten tolas is 1 rupee, which can be accomplished in two days. The

Gold thread.

Chuppureah or gold thread maker twists badla round a silk filament, and makes gold thread called kullabuttoo ; the operation is a simple one, yet requiring much nicety ; round a long winder provided with a hook at top, and loaded at the bottom, is wound a certain quantity of fine silk thread ; upon another winder, similar in appearance, is wound the kullabuttoo as it is prepared, which is made by attaching the end of some badla to the silken filament, and rapidly twirling the winder on which it is wound, the end being led over a hook suspended from the ceiling ; as the silk thread twists round, the badla is carefully adapted in its progress down, so that it neither overlaps nor exposes the silk within. Nine tolas cost one rupee making, and a man or woman can make $1\frac{1}{2}$ tola a day.

The manufacture of mushroo is also another staple production that has greatly diminished in late years ; at present there are but

Mushroo,

about 40 looms at work, though the persons following this profession are about 130. The goods made have the warps of silk, and the woof of fine cotton thread, died of various colours, and are disposed in striped or spotted patterns, some have a narrow silk border ; the amount exported last year is stated to be 25,440 rupees.

Karchookwalas or embroiderers in muslin, &c., are indiscriminately Hindoos

Karchookwalas.

and Mussulmans ; a singular and handsome style of embroidery peculiar to this place, is formed by using the wing of certain coleopterous insects for the patterns ; these are green beetles, which are imported from Kandesh at 8 annas the 1,000 ; the value of this manufacture varies from 5,000 to 10,000 rupees a year, and is principally exported to Madras and Hyderabad. Many females of decayed Mussulman families, who once enjoyed all the comforts of life, find employment in this species of manufacture, and thus are enabled to earn a subsistence for themselves. Another class of embroiderers stretch tash upon a tambour frame, and work patterns of flowers and leaves upon it very tastefully by sewing on beads, spangles, beetles' wings, and gold and silver badla. Caps and velvet slippers are embroidered in the same manner, and please the native taste by the showy, glittering appearance they make.

The sword cutlers confine their business entirely to ornamenting the blades

Sword Cutlers.

and handles, and making scabbards. The handles are of iron, and when required to be gilt are first made very smooth, and then finely hatched with a knife called a cheerne, and afterwards with another sloped knife called a tunkee ; the gold leaf is then applied and fixed by pressure. The instrument used for burnishing is of steel, and called a mera. There are 16 houses in this business, employing about 50 people.

Glass bangles are not made here, but imported in large quantities, principally from Kandesh. Lac bangles are manufactured by four houses—two Hindoos and two Mahomedans; they obtain their supply of lac from Oomrowtee, and the tin foil used for coating them from Bombay; a man can make 100 bangles a day, which he sells to the dealer for 8 annas, who retails them again at one pice a pair; a man's wages for working are 9 pice a day. The Punneewalas prepare their coloured tin foil in the following manner: they melt a quantity of gunda beroza in a vessel over the fire, and, according to the colour required, mix in either verdigris for green, lac for red, or huldee for yellow; it is then poured into a cloth and tied up in a bag; the foil to be coloured is laid flat upon a heated anvil, and the bag containing the gunda beroza pressed across the surface, which, melting affords a varnished coating; these coloured foils sell for 100 leaves a rupee.

There are 65 people employed in making glazed earthenware, who have others to assist them, generally members of their own family; besides these potters there are two houses that paint platters, cups, and hooka bowls with coloured lac to resemble china; the pipes for conveying water are made only by one individual, who has the privilege as an hereditary right, and pays 12 rupees a year to Government for the permission.

The wages of artificers vary very much, the daily hire of a carpenter being from 4 to 8 annas. Sawyers are paid by piece work, as, for instance, a knot of teakwood 100 rusmee guz in length and 6 tussoos in depth costs 5 rupees; for giree or other woods, 6 rupees, Smiths charge from 6 to 8 annas a day for their hire. Bricklayers from 4 to 5 annas. Tailors from 4 to 8 annas. Chucklers by the work done. Bearers 5 to 7 rupees a month. Camel men 6 to 8 rupees. Horse-keepers 3 to 6 rupees. Malees 4 to 6 rupees. Cooly labourers 3 to 4 rupees; and cooly women 4 pice a day.

The hire of a cart with two bullocks and driver is 8 annas a day. Pack bullocks are not procurable. The hire of a camel and driver is 12 annas; camels taken in a number receive but 10 annas. Tattoos are to be hired by the day, but are not procurable unless conditionally employed, agreeing to give 2 annas a day, feeding the tattoo and finding driver. Banghy coolies receive 4 annas a day, and head coolies 2 annas.

Gold mohurs are very scarce, and when wanted have to be purchased at from 19 to 21 rupees; there is a mint but no money has been coined for a long period excepting a few half and quarter rupees on occasions of festivals; the rupees in general currency are the Chulnee, Chandore, and Moonhkee (Bombay) rupees; value of these is always fluctuating, the present rate of exchange being fifteen gundahs to the Chulnee, 17½ gundahs to the Chandore, and 17¾ to the Moonhkee or Bombay rupee.

The copper coins are of two descriptions, a smaller pice called the Alumgheeree, and a large pice called the dubboo; at the present rate of exchange 60 smaller or 30 larger go for a Chulnee rupee. In exchanging money half a pice is charged on each rupee; cowries are valued at the rate of 1,350 gundahs to a rupee, and in purchasing them in the bazar a profit is made by the money changer of 6 cowries on every pice worth. In former days the money revenue of the country was all paid in tukkuhs or copper coins, and, as probably was the custom in all India to the south antecedent to A.D. 1500, with many shells and a little gold; for there are no very old silver coins in the country.

The system of weights and measures is most confused and irregular, no attention being paid to any one invariable standard, but adopting just such arrangement as may be agreed upon by purchaser and vendor; this irregularity is not owing to the non-existence of a standard, but to a preference to their own customs rather than abiding by any systematic rule.

Measures of capacity. The standard seer of the city weighs 82 Hyderabad rupees, whose relative value is thus shown :—

82 Hyderabad rupees = 1 seer ; 40 seers = 1 maund ; 3 maunds = 1 pulla.

Standard Seer. In a former communication I find I was erroneously informed as to the weight of the city seer in stating it to have been 84 rupees ; whereas that was the weight used in the bazars of the British cantonment. On weighing the standard seer I found it to be but 82 rupees, or two ounces, six drams less than two English pounds avoirdupois, calculating the average weight of the Hyderabad rupee at 173·56 grs. The plan that appears most general in the bazars is to purchase by the larger camp seer of 84 rupees and sell by the lesser or kucha one of 82 rupees.

The seer for selling ghee and metals is but 80 rupees. Another table of measures of capacity divides the pulla as follows :—

16 cheetaks = 1 seer ; 5 seers = 1 punseera ; 8 punseeras = 1 maund ; 3 maunds = 1 pulla.

Goldsmiths' Weight. Grain and all descriptions of articles are sold by these two measures, with exception of the goldsmiths, who have a particular system of weight of their own, which is the following :—

2 grains of wheat = 1 goonj or ruttee ; 2 goonj = 1 waul ; 4 wauls = 1 masha ; 12 mashas = 1 tola.

Agrarian Measures. The agrarian measures appear to be involved in a similar state of confusion and uncertainty as the rest, and though a royal standard for measuring lands exists I doubt much, from all I hear and see, whether it be ever employed. The standard is made of teakwood, about an inch in breadth and 43 inches in length, and sealed with the seal of Mooneer-ool-Moolk, Mooneer-ool-Doula Bahadur ; this is the guz of Aurungzebe and there is marked upon it also Akbars of 35 inches ; and the Ilahee

Standard Guz. guz of 29 inches : the length of one geerah or three fingers' breadth is also cut upon this standard. It is the larger guz of Aurungzebe's, and there is marked upon it also Akbars of 35 inches, and the Ilahee guz of 29½ inches ; the length of one geerah or three fingers' breadth is also cut upon this standard. It is the larger guz of Aurungzebe that is supposed to be employed in measuring lands in Berar and Aurungabad, the value of which is as follows :—2 guz make a pand, and 20 pands a beegah, forming a square of 2,210 yards, or something less than half an acre.

Another table of measurement is the following :—20 viswassa = 1 viswa ; 20 viswas = 1 pand ; 120 pands = 1 chawoor.

The linear measures employed are the Rusmee guz of 33½ inches, the cubit and the English yard.

The Rusmee guz is thus divided :—4 tuswassoo = 1 tussoo, 24 tussoo = 1 guz.

This is the measure used generally for measuring timber, masonry and buildings.

Cloth merchants divide this guz into the following :—3 fingers' breadth = 1 geerah ; 16 geerah = 1 guz.

The cubit is divided into 12 tussoo.

The English yard measure is used by Borahs, who call it waul.

The export and import duties, together with various dues and contracts, are stated to amount to Rs. 65,913-11-6 for the years 1846-47, the particulars of which are appended, and embrace a period of twelve months from May to the following April. These dues are farmed out to the highest bidder, who generally is required to make an advance to Government, in which case he is allowed interest upon it at 2 per cent. per mensem. An allowance of 12½ per cent. upon the duties is assigned for the purpose of defraying all attendant expenses. It is not unusual for the contractor to dispose of a portion of his contract to others, reserving for himself such items as ensure more certain gains though with less profits. The karoreguree in former days, I am told, generally ranged from a lac to a lac and 15,000 rupees, since which it has diminished to its present small amount. We may observe that in levying these duties it is not the custom to tax all classes

alike, the Mahomedans enjoying advantageous privileges not conceded to the Hindoos, the latter being compelled to pay $7\frac{1}{4}$ per cent., whilst the former are only called upon for $4\frac{1}{4}$. There is a shop tax levied, varying from 2 annas to 1 rupee a year, according to the amount of business transacted.

Smuggling is reported to be very general. The Naukadars who collect the mahsool receive but Rupees $2\frac{1}{2}$ per mensem, and it is much to be feared that this small pittance drives them into dishonest practices, for which the only remedy would be to pay them better. The articles on which the duties are evaded principally consist of gold and silver lace, opium, ganja, ghee and sugar.

The special trade consists in grain and other agricultural produce, the principal of which are wheat, bajree, jowarree, gram, tobacco, safflower and sugar, and a small amount of manufactured goods, as kincobs, brocades, and mushroo. The raw produce is imported from the surrounding districts for the consumption of the city, and the manufactured goods exported principally to Hyderabad and Madras. Salt, iron, hardware, and English goods to the value of about Rs. 5,000, consisting of piece goods, silks, broadcloths, camlets, shawls, and sundries, are imported from Bombay.

Such is a brief outline of the staple products and property connected with the city, in drawing out which I have purposely confined my observations to mere facts, reserving for hereafter, when considering the Circar in general, more detailed remarks upon commercial subjects.

I conclude with observing that though the commercial prosperity of the city has been going back of late years it possesses in its surrounding districts the essential of a state of things the very reverse to this, the climate, soil, natural productions, and habits of the ryots all tending to success. With these blessings of Providence so lavishly bestowed nothing is wanting but the sagacity of man to know how to adapt them to the increase of social happiness, as well as to the more effective resources of the State.

Trades, Occupations, &c.

Hakeems	6	Shoemakers	40	
Druggists	47	Tobacconists... ..	35	
Goldsmiths	104	Tanners	45	
Gold wire drawers	1	Sweetmeat makers	45	
Fine do. do.	4	Gunny weavers	30	
Jewellers	24	Pipe makers	8	
Tinsel makers	20	Cotton weavers	37	
Coppersmiths	41	Massulchees	62	
Blacksmiths	56	Gaolees	95	
Sword cutlers	16	Flower garland makers	16	
Dyers... ..	47	Musicians	36	
Lac Bangle makers	4	Nautch girls with taifa	105	
Tailors	106	Nautch girls without do.	65	
Muslin embroiderers	17	Borals, 168 {	Kinkob weavers	7
Stone cutters	5		Silk dyers	4
Pot makers	65		Black thread dyers	4
Carpenters	17		Bangle sellers	32
Gharree makers	7		Tinmen	5
Oil makers	262		Ironsmiths	15
Butchers	85		Slipper makers... ..	4
Cooks	17		Lace makers	15
Distillers	35	Moullahs	3	
Bricklayers	80	Jain Priests	7	
Chunnam makers	7	Gosayes and Byragees	117	
Brocade weavers	25	Schoolmasters	42	
Tape makers	5	Moonshees	5	
Weavers	135	Pundits	7	
Dhobees	246	Prisoners	185	
Malces	341	Europeans and Eurasians	25	

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Customs Duties payable on Goods imported into and exported from the City of Aurungabad from May 1846 to April 1847.

Enumeration of Goods.						Quantity.			Value.			Duty.		
						Pul.	M.	Sr.	Rs.	a.	p.	Rs.	a.	p.
Cotton, cleaned	...	...	...	...	...	47	2	23½	1,160	8	9	82	12	3
Do. uncleaned	...	...	...	...	...	122	2	7½	944	5	6	88	14	6
Do. thread	...	...	...	...	...	8	2	36½	728	11	6	29	6	0
Do. piece goods, E.	...	...	...	...	pieces	520			2,267	11	6	81	2	9
Do. do. do. N. (silk border)	...	...	...	...	"	208			735	1	0	24	5	9
Do. bags, puddum	...	...	...	...	bundles	36			.....			1	10	0
Shawls, Europe	...	...	...	...	pieces	262			528	12	0	17	13	9
Silk piece goods, E	...	...	...	...	"	55			1,231	3	9	40	12	6
Blankets, red	...	...	...	...	No.	4			4	12	0	0	2	9
Broadcloth	...	...	...	...	yards	476			922	0	0	35	2	0
Silk 1st softs	...	...	...	...	...	11	0	9½	18,677	2	0	622	8	0
Do. 2nd sort	...	...	...	...	...	12	1	31½	3,008	12	0	107	8	9
Twine, native	...	...	...	...	...	6	1	37½	197	4	0	13	10	9
Tat Puttee	...	...	...	...	No.	320			.....			8	11	3
Cotton thread balls	...	...	...	...	dozens	39			31	14	0	1	1	0
Do. bundles	...	...	...	...	No.	200			.....			4	5	6
Gloves	...	...	...	...	dozens	1			6	0	0	1	0	3
Stockings	...	...	...	...	"	2			10	8	0	0	5	6
Hemp (Sunn)	...	...	...	...	...	74	1	19½	368	12	0	78	11	0
Do. Umbarree	...	...	...	...	...	27	2	11	319	6	6	23	2	0
Carpets native cotton	...	...	...	...	bundles	32			80	0	0	3	3	3
Galleechas	...	...	...	...	No.	18			60	0	0	2	10	0
Camlets	...	...	...	...	...	.....			107	13	0	3	9	0
Coffee	...	...	...	...	...	4	2	33½	226	0	6	24	6	9
Sago	...	...	...	...	...	0	0	38	19	3	0	0	11	0
Snuff	...	...	...	...	...	2	1	2½	472	4	0	30	4	0
Ivory	...	...	...	...	piece. No.	1			6	0	0	0	8	6
Soap, Europe	...	...	...	...	dozen cakes	33½			87	3	9	2	15	0
Do. Native	...	...	...	...	...	2	1	1½	44	6	0	2	0	0
Wax, country	...	...	...	...	...	0	0	31	35	2	6	1	11	3
Tea	...	...	...	...	...	0	0	13½	41	10	0	2	5	9
Boxes of tea	...	...	...	...	...	2			86	14	0	2	14	9
Wax candles	...	...	...	...	...	1	0	34½	177	1	6	7	3	0
Honey	...	...	...	...	...	5	1	15½	204	3	0	14	1	0
Cattle fish bones	...	...	...	...	...	0	0	14	6	0	0	0	6	9
Beads	...	...	...	...	strings	76			57	0	0	2	3	0
Gunpowder, Europe	...	...	...	...	canisters	61			75	6	0	2	12	0
Fireworks	...	...	...	...	boxes	6			75	14	0	2	15	9
Braces	...	...	...	...	dozen	1			3	13	0	0	2	3
Paper, China	...	...	...	...	...	.....			162	14	0	5	6	0
Do. coloured	...	...	...	...	quires	9½			18	0	0	0	14	6
Paper Europe	...	...	...	...	...	.....			262	14	0	8	10	6
Tin foil	...	...	...	...	bundles	2			1	4	0	0	0	6
Hooka bowls	...	...	...	...	No.	100			6	4	0	0	5	0
Red thread	...	...	...	...	...	0	0	28½	118	10	0	7	8	3
Saltpetre	...	...	...	...	...	27	0	39	537	9	0	26	7	3
Rock salt	...	...	...	...	...	0	1	34	8	6	0	0	10	3
Alum	...	...	...	...	...	3	2	17½	84	8	0	5	13	0
Borax, 1st sort	...	...	...	...	...	0	0	7½	6	8	0	0	7	6
Do. 2nd do.	...	...	...	...	...	0	2	3½	75	1	9	2	14	6
Carbonate of ammonia	...	...	...	...	...	0	1	1½	38	10	0	1	6	9
Table salt	...	...	...	...	...	1,164	1	20	.....			673	0	6
Black salt	...	...	...	...	...	3	1	10½	69	4	6	4	12	0
Potash (Sujjeekhar)	...	...	...	...	...	1	1	30	60	4	0	3	3	6
Soda (Papurkhar)	...	...	...	...	...	22	2	25	434	9	0	28	5	0
Budkhar	...	...	...	...	...	0	0	16	2	6	0	0	3	0
Bangurkhar	...	...	...	...	...	0	0	16½	2	1	0	0	2	6
Ghee	...	...	...	...	...	460	0	19½	.....			2	502	13
Goor	...	...	...	...	...	1,124	0	33½	.....			1,911	2	0
Tobacco	...	...	...	...	...	431	2	19½	.....			926	5	0
Sugarcandy	...	...	...	...	...	18	0	35	2,255	4	0	77	7	9
Tubs Sugarcandy	...	...	...	...	No.	10			102	0	0	3	8	0
Raub	...	...	...	...	...	0	0	12½	.....			0	5	3
Ravedy	...	...	...	...	...	3	1	18½	.....			0	7	3
Kakee (Raub water)	...	...	...	...	...	53	0	8	.....			53	4	0
Khuplee (Sugarcandy spoilt)	...	...	...	...	...	16	1	10	.....			3	2	9
Sugar soft	...	...	...	...	...	596	2	5½	31,551	15	6	2,211	10	6

DRUGS AND DYING STUFF.

Safflower	...	...	...	...	...	116	0	30	2,432	10	3	170	7	0
Turmeric, 1st sort	...	...	...	...	...	78	2	25	2,705	15	0	159	15	3
Do. 2nd do.	...	...	...	...	...	3	2	30	23	3	0	1	8	3
Do. 3rd do.	...	...	...	...	...	0	0	36	9	8	0	0	10	6

HYDERABAD AFFAIRS.

Enumeration of Goods.	Quantity.			Value.		Duty.	
	Pul.	M.	S.	Rs.	a. p.	Rs.	a. p.
Poppy seeds	28	1	13½	404	14 6	32	3 0
Betel nuts, 1st sort	66	0	24½	2,108	7 6	136	14 6
Do, 2nd do.	162	1	39½	7,283	4 6	397	14 9
Do, 3rd do.	17	2	22	442	13 0	30	1 6
Gall nuts	0	0	8	7	0 0	0	7 3
Castor seeds	0	0	8	0	3 3	0	0 6
Goolaul (red stuff)	6	1	21½	164	0 0	11	9 9
Aloes	0	0	3	0	8 0	0	0 6
Prussian Blue	3	0	8½	895	5 0	48	5 3
Opium	4	2	12½	462	3 0	286	0 3
Chucksco seeds	0	0	11	3	8 0	0	2 0
Kirmizdana (Cochineal)	1	1	10	1,792	6 6	67	12 0
Small gall nut, (Bal Hudda)	1	0	11	14	10 0	1	2 0
Black bellebore	0	1	6	31	13 0	1	11 9
Zafuran (Saffron)	0	0	1½	99	8 0	5	13 6
Pellitory	0	0	5	7	8 0	0	7 6
Indigo (Europe)	0	0	1½	2	13 0	0	1 6
Kuss	0	1	5½	39	6 9	8	14 9
Senna leaves	1	1	19	56.11	6	3	8 6
Croton seeds	0	0	1½	0	8 0	0	0 6
Camphor	2	0	29½	528	5 3	33	1 9
Salep Misree	0	0	7½	0	15 0	0	1 0
Rhubarb	0	0	2½	0	15 0	0	1 0
Brimstone	2	0	16½	70	13 0	4	2 6
Bang	2	1	32	.....	.....	5	13 9
Essence peppermint, bottles	6			9	6 0	0	5 0
Rose water	0	0	10	15	0 0	0	8 0
Rose flower buds	1	1	20½	55	6 6	2	15 9
Sweet flag	0	2	8	6	9 6	0	9 6
Tujj	0	2	12½	11	12 6	0	14 0
Ganja	14	0	39½	.....	.....	75	7 0
Cheerayta	0	0	19	9	8 0	0	10 0
Cheeroonjee seeds	2	2	25	175	9 6	11	12 6
Hurmuzree (red earth)	9	1	9	90	4 0	7	15 9
Nagesur (cassia buds)	0	2	9½	13	10 0	1	0 6
Flower of Dowra	1	2	22½	24	1 6	1	15 9
Talmachana seeds (Barleria longifolia)	0	0	1	0	10 0	0	0 6
Succory (Kasuee)	0	1	12½	5	6 0	0	6 3
Kaephul (an aromatic bark)	0	0	13½	5	8 0	0	6 6
Mathee	21	1	18	176	11 0	15	6 6
Mydakachoor	0	1	22	9	4 0	0	11 3
Sunflower seeds	0	0	14	14	0 0	0	14 6
Ispagool seeds (Fleawort)	0	1	18½	3	8 0	0	4 3
Ghowhalla	0	0	14½	5	14 9	0	5 0
Pistachio flower	1	1	14½	174	5 3	7	11 0
Kildera flower	10			.....	.....	0	8 0
Khobkala seeds	1	0	12	71	12 3	4	6 0
Tajput (cassia leaves)	2	1	28	68	4 0	4	14 9
Sungjeera (soapstone)	0	0	30	33	7 6	1	14 9
Keerakussees (Acanthus ilicifolia)	5	0	19	99	4 0	6	8 0
Soofaid mooslee (root of Asparagus sarmentosus)	0	1	30½	18	15 0	1	5 0
Koonkoo (red powder)	3	0	7	63	6 0	4	12 0
Sookabareza	1	0	11	17	0 0	1	5 3
Large gall nuts	0	0	7	5	4 0	0	5 6
Sclaruss oil	0	1	9½	83	0 0	5	14 9
Seekakai nuts (Menio detergens)	4	2	16½	79	10 6	5	3 9
Balunga seeds	0	0	19½	9	15 0	0	10 3
Mydawood	0	2	10	13	8 0	1	0 6
Kajoo nuts (cashew nuts)	0	0	24	5	5 0	0	3 6
Kuppoorea heerec (zodary)	1	1	17½	88	4 0	5	13 3
Flowers of Birnee (dye)	0	1	10½	31	12 6	1	12 3
Punch leaves	0	0	3	1	2 0	0	1 0
Puchkhara (impure salt)	0	0	19½	4	12 0	0	5 3
Sappara wood	2	2	12	73	14 0	5	5 9
Root of the Kala mooslee	0	0	14	4	11 9	0	5 3
Root of Salajj	0	2	27	10	11 6	0	14 3
Isburng (seeds of waterlily)	5	2	17½	453	13 6	23	14 3
Uskund root	0	2	18	21	2 0	1	5 0
Bark of root of Puttandole	1	1	35	73	2 0	2	13 9
Nukachoor (cassia bark)	0	0	5	3	5 0	0	3 6
Marking nuts	4	0	13	92	3 6	6	11 6
Balbadung	0	2	15	13	13 0	1	0 9
Flower of marking nuts	2	0	17½	10	2 0	0	14 9
Boredana	0	0	2	2	8 0	0	2 6
Mujcet root	0	0	4½	4	4 0	0	4 6
Asarawun root	0	0	9	21	5 0	0	12 6

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Enumeration of Goods.						Quantity.	Value.	Duty.
						Pul. M. S.	Rs. a. p.	Rs. a. p.
Toon seeds...	...	...	...	...	...	0 0 34	13 14 0	0 15 0
Rubasoots (liquorice)	...	...	...	...	...	0 0 3½	4 3 3	0 3 3
Seetulcheence (allspice)	...	...	...	...	...	0 0 6	4 8 0	0 4 9
Bowkoomba seedr...	...	...	...	...	...	0 1 32	9 0 0	0 11 6
EARTHS.								
Red ochre ...	...	...	...	...	...	3 2 25	45 5 0	3 12 6
Pipeclay, 1st sort ...	...	...	...	...	...	4 0 37	78 2 0	5 3 3
Do. 2nd sort ...	...	...	...	...	...	1 2 33½	60 14 0	4 4 9
Chalk ...	...	...	...	...	...	0 0 39	4 8 9	0 3 0
Pukkumbado (yellow earth)	...	...	...	...	...	0 0 14	2 6 0	0 2 9
Tuvakbeer (white earth)...	...	...	...	...	...	1 0 11	76 14 0	5 1 0
Karneela (red earth)	...	...	...	...	...	0 0 5	4 13 6	0 2 9
FRUITS DRIED AND UNDRIED.								
Walnut's ...	...	...	...	...	No.	400	1 8 0	0 1 6
Ground nuts ...	...	...	...	...	"	186	1,284 6 9	95 11 9
Pistachio nuts ...	...	...	...	...	...	.....	13 0 0	0 11 3
Plums ...	...	...	...	...	...	7 0 13½	184 6 9	12 10 9
Dates, wet ...	...	...	...	...	...	11 2 9½	188 10 6	13 4 6
Raisins ...	...	...	...	...	...	4 2 3	234 3 6	14 5 0
Dates, dry ...	...	...	...	...	...	44 2 25½	714 10 9	54 1 0
Cocoanuts, dry ...	...	...	...	...	...	75 1 6½	2,039 4 0	143 1 0
Do. fresh ...	...	...	...	...	No.	29,316	1,410 8 6	99 7 6
Do. shells ...	...	...	...	...	"	400	11 0 0	0 11 3
Almonds ...	...	...	...	...	...	22 1 14½	735 10 6	45 1 3
French plums ...	...	...	...	...	...	0 0 10½	6 10 0	0 5 9
Singara nuts ...	...	...	...	...	...	2 2 2½	132 10 0	7 11 9
Custard apples, ...	...	...	...	...	bullock loadr.	119	.....	16 11 6
Dry gooseberries ...	...	...	...	...	...	0 2 8	3 5 0	0 5 9
Dry mangoes ...	...	...	...	...	...	1 2 25	30 14 0	2 4 0
Wunnaub, Persian plums	...	...	...	...	...	0 0 5½	4 11 0	0 4 0
GRAIN.								
Jowarree ...	...	...	...	...	...	10,130 0 0	.....	2,540 0 6
Bajree ...	...	...	...	...	...	14,138 1 20	.....	3,837 0 0
Wheat ...	...	...	...	...	...	15,407 0 0	0 0 9	5,606 0 0
Gram ...	...	...	...	...	...	5,030 0 0	.....	2,035 0 0
Kuldeo ...	...	...	...	...	...	417 0 0	.....	215 2 0
Rice, ...	...	...	...	...	...	1,118 1 20	.....	673 13 0
Tillee ...	...	...	...	...	...	517 1 20	.....	328 0 3
Dall (toor and ooreed)	...	...	...	...	...	31 0 0	.....	15 15 0
Rajghera ...	...	...	...	...	...	37 1 21	378 2 3	32 9 0
Cotton seeds ...	...	...	...	...	...	5 2 8	17 0 0	2 7 3
GUMS, &c.								
Dowra gum ...	...	...	...	...	...	0 0 35	5 4 0	0 6 3
Lac shell ...	...	...	...	...	...	2 1 15	83 6 0	4 0 9
Dammer ...	...	...	...	...	...	1 0 14	31 8 0	2 4 6
Olibanum ...	...	...	...	...	...	1 2 8½	47 4 0	2 12 6
Babool gum ...	...	...	...	...	...	20 2 12½	434 11 3	28 0 9
Asafetida, 1st sort ...	...	...	...	...	...	0 2 14	190 14 0	12 1 9
Do. 2nd sort ...	...	...	...	...	...	1 0 5½	105 0 0	7 0 0
Deckamallee ...	...	...	...	...	...	0 1 32½	15 4 0	1 1 6
Catechu, 1st sort ...	...	...	...	...	...	10 0 32½	467 13 9	30 11 9
Do. 2nd sort ...	...	...	...	...	...	0 1 2½	13 2 0	0 14 6
Benjamin ...	...	...	...	...	...	3 1 26½	201 6 6	13 4 3
Lac, raw ...	...	...	...	...	...	27 2 36	889 5 6	39 14 9
Gundabaraza ...	...	...	...	...	...	0 0 20	18 2 0	0 10 0
Roomee muckkes ...	...	...	...	...	...	0 0 1½	8 12 0	0 4 6
HARDWARE.								
Brass and iron locks ...	...	...	...	...	dozens.	104½	33 3 0	4 4 0
Flints ...	...	...	...	...	No.	600	3 0 0	0 3 6
Looking-glasses ...	...	...	...	...	"	900	120 0 0	5 0 0
Hanging lamps ...	...	...	...	...	"	10	52 0 0	2 1 6
Scissors ...	...	...	...	...	dozens.	32	42 15 6	1 7 0
Padlocks ...	...	...	...	...	"	90½	107 6 6	3 10 0
Penknives ...	...	...	...	...	"	64	130 4 0	4 4 6
Iron spoons ...	...	...	...	...	No.	350	9 8 0	0 5 3
•Betelnut cutters ...	...	...	...	...	"	29	18 5 6	0 9 6

HYDERABAD AFFAIRS.

Enumeration of Goods.					Quantity.	Value.	Duty.
					Pul. M. S.	Rs. a. p.	Rs. a. p.
Files	...	...	...	dozens.	3	6 0 0	0 3 3
Steel pens	...	...	...	"	9	5 0 0	0 2 3
Knife handles	...	...	...	"	10	2 0 0	0 1 6
Sword do.	...	...	...	No.	20	5 10 0	0 8 3
Cooking utensils, copper and brass	...	...	...	...	3 0 0	.....	27 4 0
Nails	...	...	...	...	0 1 20	.....	1 8 0
Brass wire	...	...	...	...	.....	37 8 0	1 8 0
Iron wire	...	...	...	...	.....	18 12 0	0 12 0
Window glass	...	...	...	...	40 dozens panes.	90 0 0	3 9 9
Glassware	...	...	...	No.	156	68 0 0	2 9 0
Chinaware	...	...	...	dozens.	211	10 14 0	6 6 0
White paint	...	...	...	...	0 0 31	16 0 0	1 1 0
China cups	...	...	...	No.	221	4 12 0	0 2 3
Native whips	...	...	...	"	18	.....	1 2 0
Do. bridles	...	...	...	"	405	50 0 0	1 5 0
Narrel hooka	...	...	...	"	16	1 4 0	0 0 6
HIDES, LEATHER, &C.							
Hides	...	...	...	bullock loads.	5	.....	8 13 3
Do. tanned	...	...	...	pieces.	182	.....	8 13 0
Samber skins	...	...	...	No.	5	3 14 6	0 2 9
Leathern buckets	...	...	...	"	4	.....	0 1 6
Pukkalls	...	...	...	"	4	.....	0 9 9
METALS.							
Pewter	...	...	...	...	4 2 7½	646 12 0	35 4 0
Tin plates	...	...	...	dozens.	40½	75 0 0	3 0 0
Copper coins	...	...	...	bags.	57	.....	2 14 0
Steel	...	...	...	...	1 1 33	64 2 0	2 5 9
Iron, country	...	...	...	...	8 1 10	252 8 0	9 8 0
Iron, Europe	...	...	...	...	20 3 10	.....	63 6 0
Lead	...	...	...	...	0 1 20	12 0 0	0 14 0
Copper sheets	...	...	...	...	2 1 0	.....	21 0 0
Tutuag (Tanchene)	...	...	...	boxes.	3	75 0 0	3 0 0
Quicksilver	...	...	...	"	5	7 8 0	0 7 6
MINERALS.							
White lead	...	...	...	...	2 1 9½	51 0 0	3 5 0
Red lead	...	...	...	...	3 2 2½	208 14 0	12 0 3
Talc mica	...	...	...	...	0 0 20½	20 0 0	0 11 6
Litharge	...	...	...	...	0 0 4½	3 6 0	0 3 3
Sulphuret of antimony, 1st sort.	...	...	...	...	0 0 4½	9 10 0	0 6 3
Do. do. 2nd sort.	...	...	...	...	0 0 21	13 2 0	0 13 9
Oxide of Arsenic	...	...	...	...	0 0 8½	12 7 6	0 13 0
Verdigris	...	...	...	...	0 0 11½	49 4 0	2 9 3
Blue vitriol	...	...	...	...	0 0 23½	27 0 0	1 12 0
Corrosive sublimate	...	...	...	...	0 0 2	9 0 0	0 4 6
Bundles red lead	...	...	...	No.	17	31 12 0	2 0 9
Orpiment	...	...	...	...	0 1 35½	66 0 0	4 4 6
Salammuniac	...	...	...	...	10 0 25½	489 6 0	30 9 0
Sulphate of copper (Morechoor)	...	...	...	...	0 0 5	6 2 0	0 6 6
Red lead powder (Hingole)	...	...	...	...	0 0 2½	16 3 6	0 8 6
Do. do. bundles	...	...	...	No.	7	15 8 0	0 8 3
OILS.							
Sandalwood oil	...	...	...	...	0 0 22½	56 10 3	1 13 9
Grass oil	...	...	...	...	0 0 20½	153 2 0	6 8 9
Olive oil	...	...	...	...	0 0 2½	3 12 0	0 2 6
Castor oil	...	...	...	...	0 0 10	.....	0 5 6
Cocoonut oil	...	...	...	...	9 2 1½	367 8 0	23 13 6
Oil of chuckrook	...	...	...	...	0 0 7½	0 14 0	0 1 0
Malkumnee oil	...	...	...	...	0 0 3½	3 8 0	0 3 6
SPICES.							
Long pepper	...	...	...	...	0 1 0	53 13 6	2 9 6
Black pepper	...	...	...	...	4 0 38½	242 9 9	16 6 0
Nutmeg	...	...	...	...	0 1 35	53 15 6	3 2 9
Coriander seed	...	...	...	...	58 2 20	1,129 14 9	85 1 6
Mustard seed	...	...	...	...	10 2 23½	130 10 0	10 13 9
Curmin seed	...	...	...	...	5 2 30	266 5 0	15 11 0
Cloves	...	...	...	...	5 1 0	746 3 0	41 14 0*

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Enumeration of Goods.						Quantity.	Value.	Duty.
						Pul. M. S.	Rs. a. p.	Rs. a. p.
Cardamoms	...	...	...	...	...	1 2 29½	608 14 0	26 8 3
Mace	...	...	...	...	...	0 0 8	43 13 0	1 15 3
Radish seeds	...	...	...	...	...	0 0 19	1 15 0	0 2 6
Dry ginger	...	...	...	...	...	2 2 24	194 1 0	12 4 0
Black cummin seed	...	...	...	...	...	3 2 22½	32 6 0	2 12 3
Cinnamon	...	...	...	...	...	1 1 32½	137 2 9	7 15 3
Carrot seed	...	...	...	...	...	0 0 3	0 6 0	0 0 3
Anise	...	...	...	...	...	3 0 30¾	61 4 6	4 9 6
Chillies	...	...	...	...	...	5 2 18½	.....	13 1 9
Garlic	...	...	...	...	...	0 0 9½	.....	0 2 9
Dill seed	...	...	...	...	...	26 0 9½	205 6 0	20 4 3
Gatepeepul	...	...	...	...	...	0 1 8	24 8 0	1 6 9
Shajeera	...	...	...	...	...	2 1 14½	220 4 0	13 14 0
Cross	...	...	...	...	...	0 1 24	5 4 0	0 7 3
Onion seed	...	...	...	...	...	0 1 27	13 6 0	0 15 9
Beans	...	...	...	...	...	0 0 2½	0 5 0	0 0 3
SONDRIES.								
Mats, palm	...	...	...	mon loads.	86	.....	.....	0 13 0
Palm leaves	...	...	...	do.	21	.....	.....	0 8 3
Bundles of grass	...	...	...	blk. loads.	117	.....	.....	2 4 0
Kurbee	...	...	...	do.	1,017	.....	.....	40 9 3
Broken bangles	...	...	...	do.	46	.....	.....	7 1 3
Dung cakes	...	...	...	do.	156	.....	.....	0 11 0
Dried fish	...	...	...	...	2 0 30	.....	.....	5 10 0
Bangles	...	...	...	blk. loads.	14	.....	.....	31 8 0
WOODS.								
Rattans	...	...	...	bundles.	2	13 14 0	.....	0 10 0
Bamboos, 1st sort	...	...	...	No.	2,349	.....	.....	17 3 3
Do. 2nd sort	...	...	...	"	3,120	.....	.....	29 14 9
Firewood	...	...	...	blk. loads.	2,519	.....	.....	45 12 3
Charcoal	...	...	...	do.	2,553	.....	.....	100 5 3
Teak knots	...	...	...	...	.....	2,446 10 3	.....	316 0 0
Jungle wood timbers	...	...	...	...	.....	658 12 0	.....	49 8 3
Add amount of dues not declared						.....	.....	28,671 10 0
Total						.....	.....	7,609 6 6
								36,281 0 6
EXPORTS.						Pul. M. S.	Rs. a. p.	Rs. a. p.
Saltpetre	...	...	...	...	...	1 1 34½	23 0 0	1 4 0
Ghee	...	...	...	...	...	0 1 20	.....	0 8 0
Oil	...	...	...	...	...	22 0 35	.....	42 8 6
Salt	...	...	...	...	...	10 1 20	.....	2 10 0
Wheat flour	...	...	...	...	...	0 1 20	.....	0 4 0
Rolong	...	...	...	...	...	0 2 10	.....	0 13 6
Gunpowder, native	...	...	...	...	...	0 1 15	18 0 0	0 12 0
Sunn (hemp)	...	...	...	...	...	0 0 20	.....	0 1 6
Fans	...	...	...	No.	20	0 8 0	.....	0 0 6
Shoes	...	...	...	pairs.	50	33 8 0	.....	1 11 3
Plain books	...	...	...	No.	17	21 8 0	.....	1 6 0
Country paper	...	...	...	bundles.	57	96 12 0	.....	6 4 6
Old tatputtee	...	...	...	do.	20	.....	.....	5 0 6
Silver foil	...	...	...	do.	90	.....	.....	14 3 0
Fireworks	...	...	...	...	.....	51 14 0	.....	2 8 9
Gold wire	...	...	...	tolas.	3,412	3,412 0 0	.....	136 8 0
Nukkee gota kinaree lace	...	...	...	...	.....	16,588 0 0	.....	667 0 0
Mushroo	...	...	...	...	.....	25,440 0 0	.....	1,488 8 9
Kincob	...	...	...	...	.....	15,560 0 0	.....	623 0 0
Lace caps	...	...	...	...	.....	226 0 0	.....	9 10 0
Cot tape	...	...	...	...	0 0 3	4 8 0	.....	0 4 6
Blue thread	...	...	...	...	0 0 ½	0 15 0	.....	0 0 9
Cotton thread	...	...	...	...	0 0 3	1 12 0	.....	0 1 9
Red cotton	...	...	...	bundles.	2½	3 2 0	.....	0 3 0
Indigo country	...	...	...	...	0 0 ½	0 4 0	.....	0 0 3
DRUGS AND DYING STUFFS.								
Safflower	...	...	...	...	...	0 0 14½	2 4 0	0 2 9
Opium	...	...	...	...	...	0 0 3	24 8 0	1 8 9

HYDERABAD AFFAIRS.

Enumeration of Goods.							Quantity.	Value.	Duty.
							Pul. M. S.	Rs. a. p.	Rs. a. p.
Brimstone ...	...	...	...	...	...	...	0 0 2	0 12 0	0 0 9
Singara nuts ...	...	...	...	...	...	...	0 0 5	1 0 0	0 1 0
Betel nuts ...	...	...	...	...	...	...	0 0 16	6 0 0	0 6 3
Goolaul (red stuff) ...	...	...	...	...	...	...	0 0 30	15 0 0	0 15 3
Catechu ...	...	...	...	...	...	...	0 0 1	0 8 0	0 0 6
Gundgolee ...	...	...	...	...	...	...	0 0 9½	1 8 0	0 1 6
Ubeer ...	...	...	...	...	...	...	0 0 2	2 0 0	0 2 0
Sandalwood...	...	...	...	...	...	...	0 0 4	1 0 0	0 1 0
Sova Thaum...	...	...	...	...	...	...	.....	374 15 9	19 0 0
Gum...	...	...	...	...	...	...	0 0 18	1 1 0	0 1 6
Cocoanuts ...	...	...	...	...	No.	3,600		162 0 0	11 7 6
Urves ...	...	...	...	...	...	...	0 1 20	.....	1 3 0
Mowa ...	...	...	...	...	...	...	59 0 0	.....	59 0 3
Chembaleo oil ...	...	...	...	...	...	...	0 0 19	38 2 0	1 5 9
Ood buttee...	...	...	...	...	...	...	0 0 13	60 2 0	1 3 0
Utthur ...	...	...	...	...	...	...	0 0 3½	312 11 6	16 0 9
Rose water...	...	...	...	...	...	...	0 0 5	6 0 0	0 5 6
Goolkund ...	...	...	...	...	...	...	0 0 13½	27 0 0	1 0 0
Iveny leaves ...	...	...	...	...	...	...	0 0 34½	22 2 0	1 2 3
Shell lac ...	...	...	...	...	...	...	1 1 24½	209 0 9	7 10 6
Preserved Gooseberries ...	...	...	...	...	...	...	0 0 6	8 12 0	0 6 0
Gundabaroza ...	...	...	...	...	...	...	0 0 5	7 8 0	0 4 0
SPICES.									
Cardamoms ...	...	...	...	...	...	...	0 0 1	1 1 0	0 1 0
Cloves ...	...	...	...	...	...	...	0 0 1½	2 0 0	0 7 3
Nutmeg ...	...	...	...	...	...	...	0 0 1	3 0 0	0 3 0
Mace ...	...	...	...	...	...	...	0 0 1½	2 0 0	0 0 6
GRAIN.									
Bajree ...	...	...	...	...	...	...	0 2 10	.....	0 0 3
Rice ...	...	...	...	...	...	...	1 0 0	.....	1 0 0
Dall...	...	...	...	...	...	...	0 2 20	.....	0 6 0
Black grapes ...	...	...	...	...	...	...	0 0 11	9 0 0	0 10 0
Figs...	...	...	...	...	...	...	0 0 4	1 0 0	0 1 0
Sungtra, Oranges }	...	...	...	...	blk. loads.	104		0 0 4	156 3 0
Kowla do. }	...	...	...	...	do.	48½		.....	48 8 0
Narungee do.	...	...	...	...	do.				
SUNDRIES.									
Raw Silk ...	...	...	...	...	...	...	0 0 8½	55 0 0	7 2 6
Verdigris ...	...	...	...	...	...	...	0 0 1	6 0 0	0 3 6
Vinegar ...	...	...	...	...	...	...	0 2 0	40 0 0	1 7 6
Leathern vessels ...	...	...	...	...	No.	114		.....	5 14 9
Tanned skins ...	...	...	...	...	...	697		.....	19 6 9
Taut ...	...	...	...	...	...	0 1 5		.....	0 14 0
Hooka pipes ...	...	...	...	...	No.	100		6 4 0	0 5 0
Painted chillums ...	...	...	...	...	...	381		.....	0 14 6
Painted earthenware ...	...	...	...	...	...	75		.....	0 7 3
Hand baskets ...	...	...	...	...	...	21		.....	0 8 3
Tin sieves ...	...	...	...	...	...	124		.....	3 9 3
Bangles ...	...	...	...	...	sets.	43		33 0 0	1 7 0
Beche moraba ...	...	...	...	...	...	0 0 2½		20 0 0	1 4 3
Waist rings ...	...	...	...	...	...	.....		71 0 0	5 14 0
Painted earthen toys ...	...	...	...	...	...	.....		.....	1 2 9
Battans ...	...	...	...	...	bundles	4		.....	1 0 6
Add amount of dues not declared ...							.....	.....	3,379 3 3
Total...							.....	.....	2,946 12 9
									6,326 0 0
IMPORTS TO CANTONMENT.									
Sugar, soft ...	...	...	...	...	...	...	8 1 0	.....	35 13 3
Sugarcandy...	...	...	...	...	...	...	0 0 9	.....	0 6 6
Molasses ...	...	...	...	...	...	...	1 1 3	.....	4 0 9
Umbarree (hemp)...	...	...	...	...	...	...	10 1 10	.....	9 5 9
Ghee...	...	...	...	...	...	...	64 0 3½	.....	224 2 3
Ghoor ...	...	...	...	...	...	...	128 0 6	.....	218 14 3
Kakee ...	...	...	...	...	...	...	51 1 24	.....	51 7 6
Tobacco ...	...	...	...	...	...	...	75 0 34	.....	188 3 9.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Enumeration of Goods.	Quantity.	Value.	Duty.
	Pul. M. S.	Rs. a. p.	Rs. a. p.
Salt	125 2 10	.....	141 3 0
Dates, dry	4 1 26	.....	18 3 6
Do. wet	0 0 3	.....	0 0 9
Salt fish	2 0 30	.....	5 10 0
Leather	208 0 0	.....	11 15 6
Shoes	23	.....	0 10 6
Grass bundles bullock loads.	5	.....	5 9 6
Native piece goods ... ..	.....	12,005 0 6	} 350 14 0
Europe do. ... ..	.....	5,012 0 0	
Cotton thread balls.	4½	.....
Cotton bags... .. No.	53	.....
Twine	0 0 23½	.....	0 15 9
DRUGS AND DYES.			
Castor oil	0 0 2	.....	0 0 6
Catechu	0 1 17	.....	2 12 0
Opium	0 0 4	.....	1 0 0
Safflower	0 0 32	.....	1 9 6
Turmeric	0 0 5	.....	0 8 0
Mawa	118 1 0	.....	399 6 0
GRAIN.			
Wheat	1,500 0 0	.....	} 3,353 5 3
Gram	2,700 0 0	.....
Jowaree	4,200 0 0	.....
Bajree	2,386 0 0	.....
Rice... ..	2,364 1 20	.....	223 8 9
Tillee	14 1 20	.....	12 11 0
Toor... ..	20 1 20	.....	7 12 6
Kurrud	15 0 0	.....	41 9 0
Khullee	37 2 20	.....	7 1 6
SPICES, &c.			
Black Pepper	0 1 5	.....	0 13 0
Chillies	9 2 8	.....	5 9 6
Ginger	0 0 30	.....	0 5 0
Gauja	0 0 4½	.....	2 11 0
VEGETABLES AND SUNDRIES.			
Tamarind	7 2 34	.....	5 15 6
Cocoanuts, fresh No.	200	.....	1 4 0
Do. dry	4 1 26	.....	18 3 5
Plums	0 0 5	.....	0 2 6
Poppy seeds	0 0 12	.....	0 1 3
Almonds	0 0 22	.....	1 1 3
Betel nuts	3 0 0	.....	12 0 0
Ground nuts	0 2 20	.....	1 5 0
Dry mangoes	0 0 5	.....	0 0 9
Onions	1 0 0	.....	0 2 0
Mangoes bullock loads.	55½	.....	57 4 6
Custard apples	252	.....	9 15 3
Grapes	8	.....	6 0 0
Mukkat and Sugarcane	55	.....	1*12 6
Betel leaves	61½	.....	147 0 9
Vegetables	985	.....	49 3 9
Grass and Khurbee	642	.....	9 6 9
Bamboo, 1st sort	62	.....	12 5 0
Do. 2nd sort	139½	.....	26 2 6
Charcoal ass loads.	61	.....	1 12 6
Ravedy	4 0 6½	.....	12 3 0
Khuplee	0 1 0	.....	0 12 0
Tatputtee	41 0 0	.....	1 7 6
Kumbul No.	0 0 50	.....	1 8 9
Toddy; pots.	1,225	.....	52 14 0
Brass and Copper Vessels... ..	2 0 33½	.....	17 11 0
Firewood bullock loads.	944	.....	35 8 0
Contract for cattle sale Hd.	100	.....	37 10 9
Do. for sheep and cow butcher ... ..	.....	.....	158 0 0
			6,000 2 6
Deduct Excess as declared in General Abstract			990 7 6
Total... ..			5,018 11 0

HYDERABAD AFFAIRS.

Enumeration of Goods.	Quantity.	Value.	Duty.
GENERAL ABSTRACT OF CITY DUES.			
Duty on Imports	Pul. M. Sr. 36,281 0 6	Rs. a. p.	Rs. a. p.
Duty on Exports	6,326 0 0	.....	.....
Duty on Imports to Cantonment	5,018 11 0	.....	.....
	47,625 11 6	.....	.....
Contract for Sheep Butcher	480 0 0	.....	.....
Do. Cow do.	504 0 0	.....	.....
Contract for sale of betel leaves... ..	2,400 0 0	.....	.....
Abkarce contract	7,800 0 0	.....	.....
Contract for sale of cattle	504 0 0	.....	.....
Do. for Rumbas	2,400 0 0	.....	.....
Do. for sale of vegetables	600 0 0	.....	.....
Do. for Mint and waste land within the walls	3,600 0 0	.....	.....
	18,288 0 0	.....	.....
Grand Total...	65,913 11 6	.....	.....

(MADRAS JOURNAL OF LITERATURE AND SCIENCE, No. 38, *July—December*, 1850.)

I.—STATISTICAL REPORT ON THE CIRCAR OF NELGOONDA. By Dr. WALKER, Surgeon H. H. the Nizam's Army, on Special Duty. Communicated by Major-General FRASER, Resident at Hyderabad.

The Circar of Nelgoonda and the five pergunnas of the Devarconda Circar, of which the accompanying tables give the statistical details, are bounded on the south by the Kistna river and the Gunpore Circar, on the west by the Kummum Circar, and by the pergunna of Moonegal, belonging to the Company; on the north by the Warungul and Bongheer Circars, and on the east by the Bongheer Circar, and other portions of the Devarconda Circar. This tract lies between 79° 56' and 78° 39' east longitude, and 16° 32' and 16° 57' to 17° 50' north latitude, and contains 516 inhabited villages with their hamlets; of these fifteen are jagheer villages, from which no returns were received, but the population of which is calculated from the average number of inhabitants to each village being 190 souls. The whole population is 98,261, which taking the area at 2,744 miles gives about 36 inhabitants to the square mile; the houses are 19,387, giving an average of 4.82 per house on the population of 95,456, which is exclusive of the jagheer villages. For the streams that water the country, for the roads by which it is traversed, and for the tanks, their number and size, reference is made to the published map of the Hyderabad survey, and to the geographical memoir accompanying it. The only change is that the highroad from Madras to Hyderabad no longer passes by Nelgoonda, but strikes the Masulipatam road at Nakrikul. Mostly all the gurrees of the villages, are in a tumble-down state, but are repairable at a small cost, their foundations always remaining. The three old Hindob fortresses of Nelgoonda, Devarconda and Woondragonda still remain, but without ordnance of any description. The number of men employed and paid by the Government for the collection of the revenue and for the purposes of Police are eighty Arabs or Rohillahs, at 15 rupees a month, under a Chiaous; 180 Linewallahs, as they are called, who receive Rs. 4 to Rs. 5 a month, under a Commandant, who gets Rs. 100 a month, and three or four Native officers. There are, besides, 80 Sowars at Rs. 30 a month for each horse, and 150 Police Peadahs at Rs. 3 to Rs. 2½ of monthly pay.

The Arabs are feared by all. Some of the Sowars are well mounted; the Linewallahs, the miserable representatives of the old French Corps, and who still retain their words of command in French, are a poor set, and the Peadahs are indifferently armed ragamuffins.

In former and more prosperous times water to fill tanks was drawn by means of watercourses from the Moosy river, but these have been all choked up; they might be cleared out at a small expense, and nothing would conduce more than such a proceeding to the well-being of a country so cursed by drought.

The Sahyer of this Circar is farmed by a Brahmin Darogah, Nursingah, and Mahomed Kassim, a Mahomedan, who pay the rent to the Naib Talookdar. I have placed an asterisk to the villages containing more than a thousand inhabitants; by running over the lines opposite, as much information will be gathered as any detailed account can afford.

Ferries on the Kistna River.

The Kistna is crossed at four points, in the following order of places taking them from east to west : Goonlumpilly, Warapilly or Wazeerabad, Mooneemanicum, Chittial, Chintalpallem and Yelliswarum, all in the Circar Devarconda. At Warapilly there is a strong commodious boat of teakwood, but at all the other places the boats are merely round baskets of wicker made of the *Vitex Negundo*, and covered with leather, 8 to 10 feet in diameter, the whole cost not amounting to twelve rupees : a drawing of this species of ferry boat is given, with a landing-place built of stone, but the last is very frequently swept away by the river freshes. The boatmen are of the bearer caste, and are three or four in number. The fares are not constant, depending on the fullness of the river, and are settled by previous agreement, but the following tables will give a general idea of them :—

Ferry dues levied on the following articles that pass through the chokees on the banks of the Kistna, included in the Sahyer at Warapilly.

	Rs.	a.	p.
For rice and pulses per bullock load	0	9	0
For salt, limestone, bajree, jowaree, paddy, &c., per bullock load	0	5	6
For chillies, jagghery, cocoanuts, dry leaves and country cloths, per bullock load	1	4	0
For tamarinds per bullock load	0	14	0
For country cloths for every rupee's worth	0	1	0
For a man	0	1	9
For a carriage or conveyance	2	13	
For an empty cart	1	0	
For a palanquin	2	0	
For a dooly	1	4	0
For a horse	0	7	
For a bullock	0	5	3
For an ass	0	4	0
For salt and grain for every hundred bullock loads	20	0	0
For sheep and goats for every hundred	3	10	0

Ferry dues levied on the following articles included in the Sahyer at Goonlumpilly, Mooneemanicum and Yelliswarum.

For rice, moong, cooltee, kungones, for a bullock load	0	5	3
For paddy and cully per bullock load	0	3	3
For chelevaroo, cotton, cocoanuts, turmeric, &c., for a bullock load	2	0	
For country cloths, cotton thread, ganja, for a bullock load	19	0	
For tamarinds, palmyra, jagghery, &c., for a bullock load	9	0	
For hemp, for a bullock load	2	6	
For ghee, oil nuts, for a bullock load	0	0	
For sheep and goats, for every hundred	7	0	0

Ferry dues levied on all persons and cattle passing over the Kistna as follows at Yelliswarum.

For bullocks, cows, buffaloes and horses, each	0	4	0
For a man	0	0	3
For an ass	0	0	6

Ferry dues levied on the following articles included in the Sahyer at Chittial and Chintalpallem.

For salt, cooltee and grain, for a bullock load	0	5	3
For chillies, cocoanuts and turmeric, for a bullock load	0	13	0

Duties on corn, cattle, &c., in the kusba of Nelgoonda.

For each pulla of dry grain and pulses brought by the Nelgoonda ryots	0	2	0
If brought by other ryots	0	4	0
For each pulla of paddy brought by other ryots	0	2	3
For each pulla of goor, rice and oils brought by the Nelgoonda ryots	0	8	0
For each pulla of goor, rice and oils brought by other ryots	0	10	0
For sheep and goats, per hundred	7	0	0
For each cow, bull, calf, and male buffalo	6	5	0
For each bullock and buffalo	0	8	0

For a horse or tattoo, according to its estimated value, at one anna a rupee.

This will serve as a specimen of the Sahyer duties. It would be tiresome and unprofitable to give a list of the duties on produce and cattle at every chokee in the Circar. Generally a lower tax is exacted from the ryots of the pergunna than from others. The tax on cattle is pretty much the same everywhere.

General Summary of the Statistics of the Circular of Nelgoonda and five Pergunnas of Devarconda.

HYDERABAD AFFAIRS.

PERGUNNA.	Villages.		Tanks and Wells.		Ploughs.		Cattle.					Carts.		Meeradars.				Cultivators and Ryots.				Mortgag Payers.																																											
	Inhabited.	Deserted.	Total.	In Repair.	Out of Repair.	Total.	Rice Ploughs.	Dry Grain Ploughs.	Total.	Ploughing.	Other Cattle.	Total.	Full Crown.	Half Crown.	Calves and Lambs, &c.	Total.	Fourwags.	For Hire.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.																															
CIRCULAR OF NELGOONDA.																																																																	
	183	50	233	1507	1895	2502	2635	2011	2177	4188	10055	953	11068	58298	3245	24725	80368	32	7	39	1632	2758	2012	2652	8622	1372	2705	2712	2306	1729	1887	2572	3141	2090	9033																														
	55	29	84	498	856	1354	464	729	820	919	2104	264	2408	14239	1348	7523	22416	8	6	13	538	896	912	822	2610	417	753	797	696	2245	763	1145	1288	1984	3687																														
	35	18	53	268	633	901	254	187	273	459	1006	40	1246	8204	644	4069	12925	1	1	1	227	267	370	242	979	242	429	448	340	1217	259	469	474	311	1284																														
	45	20	70	415	1198	1611	340	349	379	728	1718	361	2019	13291	997	9310	25798	..	..	..	394	667	716	725	2109	337	643	672	681	1996	488	782	836	840	2479																											
CIRCULAR DEVARCONDA.																																																																	
	183	25	208	1116	1073	2189	1491	1028	1244	2418	5662	740	8411	42476	2787	19762	65298	10	7	17	1210	2228	2271	1875	6404	829	1808	1822	1207	5028	1319	2212	2380	1823	6385																														
	40	13	53	300	561	861	352	335	415	778	1659	82	1721	16797	1150	7846	27743	5	4	9	370	622	626	584	1889	371	701	672	600	2033	304	484	568	993	1742																														
	38	5	43	287	295	582	556	229	372	611	1221	270	1421	9473	619	8445	13765	1	1	1	358	537	517	438	1492	228	475	458	410	1343	217	479	447	411	1327																														
	62	10	72	389	332	722	457	442	606	1145	2663	267	2930	15850	738	7400	25717	..	1	1	279	721	749	667	2043	408	403	971	736	2730	471	657	711	662	1970																														
	32	17	49	234	650	784	541	568	307	635	1674	107	1751	16592	692	6126	21410	1	1	2	231	432	448	477	1337	228	472	464	372	1308	345	583	626	529	1788																														
	15	11	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	648	203	851	6010	6831	11901	6190	5443	6451	11899	27793	2935	20740	198162	12170	96907	301139	69	25	83	5213	9271	9511	8895	27177	4543	8977	9016	7617	26610	6233	9924	1042	9328	29685																														
																														
	Sabyer Revenue...																																	

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Pergana.	Inhabitants.					Amount of Produce.	Temples and Mosques.																	
	Grand Total.						Grand Total.	Town Duty and Keyy Duties.	Mahanad.	Hinnoruan.	Sakti.	Mosque.												
	Mosque.	Women.	Children.	Total.	Houses.																			
Sircar of Nelgoondah.	1381	1680	1356	1193	4429	6163	7042	10222	9121	25523	43130 10 0	3502 0 0	10164 11 0	6260 14 3	62044 3 3	11	33	48	53	43	11			
	485	639	732	624	2015	2243	2423	2629	3435	10567	8703 6 3	3152 2 0	1571 11 0	14615 3 3	..	23	21	11	11	3	1			
	97	146	165	123	431	835	1411	1437	1016	2854	2860 15 3	432 12 0	2142 14 0	2196 5 6	8163 1 0	1	9	10	7	2	..			
	223	304	343	372	1019	1442	2397	2570	2621	7564	9639 4 3	779 0 0	1433 4 0	1033 7.	12669 15 3	..	2	2	2	2	2	..		
	539	773	851	729	2868	3687	7065	7294	5523	20175	25471 15 0	2468 15 0	2683 8 6	4278 11 0	34901 2 3	2	38	34	39	8	..			
Sircar Devarconda.	206	230	270	241	761	1229	2164	2433	2078	6375	10716 11 3	744 3 6	823 12 0	2677 15 6	14562 10 3	1	6	6	1	3	..			
	119	160	169	130	519	532	1651	1591	1449	4691	9042 9 3	474 12 0	348 12 0	371 8 0	10437 9 3	1	14	12	..	8	..			
	193	248	279	264	720	1541	2633	2761	2659	7463	10775 15 9	1059 4 0	1020 0 0	4107 6 3	22362 10 0	1	15	11	7	..	..	
	160	253	266	210	729	984	1740	1864	1658	5122	6663 9 0	840 5 0	1810 8 0	7695 4 0	11945 13 0	1	6	6	..	1	..			
	..	..	..	..	..	..	..	..	..	2860	..	..	..	..	1814 0 0	..	..	..	..	9	..			
Jagber and Agraham Villages.	3213	4477	4632	3885	12654	..	32949	55377	29239	95306	132297 0 0	11457 6 6	25504 7 6	25733 6 5	198166 4 3	18	128	151	129	70	12			
Sahyer Revenue.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42599 0 0	..	..	..	..	..	..
																				</				

II.—STATISTICAL REPORT ON THE CIRCAR OF KUMMEMMETT. By Dr. WALKER, Surgeon, H. H. the Nizam's Army, on Special Duty. Communicated by Major-General FRASER, Resident at Hyderabad.

The Circar of Kummernett is bounded on the north by the Godavery, on the west by the Circars of Ramgheer, Warungal, Nelgoonda, and Devarconda, on the south and east by the Kistna and the collectorate of Masulipatam. This Circar, including the Paloونها territory, contains 4,840 square miles, 39,030 houses, and, allowing 4.76 inhabitants for each house, 185,782 inhabitants, or about 38 individuals to the square mile.

The average of each house is estimated by comparing the Warungal and Nelgoonda returns and striking a mean between the two. The number of houses in the Hussanabad and Sunkragherree pergunnas is calculated by comparing the average number of houses to each village of the adjoining pergunnahs of Singarany and Kanagherree. The chief village in the Circar is Kummernett, where the Naib Talookdar resides: for particulars respecting it and the other villages reference is made to the pergunna tables: all those containing upwards of 250 are marked with an asterisk. The fort of Kummernett bears evidence of old Hindoo construction, but there is no doubt that it was much repaired and strengthened by Frenchmen in the service of Zaffur-ood-Dowlah; it is going fast to ruin and decay, and the guns on the mouldering bastions, some sixty in number, are rusted and honeycombed; the *fleur-de-lis* found on them mark by whom they were cast. The inscription tells that Zaffur-ood-dowlah was their owner, and that they are about 80 years old. This potent chief had his chief residence at Kummernett, where are yet to be seen the ruins of his palace and a Barahdurree, or summer residence. His tomb is at Heermul. During his incumbency he exercised the authority of a sovereign prince, and his nickname, the Donsa, or lord of the great drum, is still mentioned with awe and respect. He must have died about 70 years ago. In Mahratta history he figures as an ally of Ragoba the usurping Peshwah.

The revenue of the Paloونها territory is given at Rs. 70,000, but only Rs. 29,000 of this sum goes to Government, Rs. 21,000 are given for the support of temples, and the rest goes to the Rajah for subsistence and the support of troops. The troops for the collection of revenue, and Police, are forty-seven horsemen, 283 Linewallahs, about forty or fifty Arabs or Scindians, and 350 Police peons; they are on the same pay and footing as the Nelgoonda force.

The map of the Kummernett Circar being published, I refer to it for the number, size and situation of the principal tanks, for roads, &c.

In this Circar there are three bands thrown across the Moonyair river, and canals of irrigation cut from the stream, by which some rice ground is irrigated. A much greater quantity of such land might be brought under cultivation by this means, as the stream which issues from the Pakhall lake contains flowing water for eight or nine months in the year.

The Sahyer is rented to the same individuals as the Sahyer of the Nelgoonda Circar. A specimen of the frontier, transit and local duties is given below.

The ghurrees are much in the same ruinous state as those in Nelgoonda.

Taxes levied at the Chowky of Kodad, Pergunna Anantagherree, Circar Kummernett.

	Rs.	A.	P.		Rs.	A.	P.
For every bullock load of rice, wheat, jowary, other dry grains and pulses, &c.	0	3	0	For every bullock load of steel ...	2	2	2
For every bullock load of paddy...	0	2	0	For every bullock load of chelwer roots...	1	8	8
For every bullock load of tobacco ...	0	12	0	For every bullock load of soap-nuts ...	0	6	6
For every bale of coarse cloths ...	0	11	0	For ore to feed each smelting furnace the Monegal ryets pay ...	0	0	8
For every bale of fine cloths and muslins	2	8	0	For each bullock load of ghee and oil ...	0	4	0
For the privilege of collecting iron ore, per annum ...	13	0	0	For each bullock load of sugar, cocoanuts, &c. ...	0	10	0
For each head of cattle purchased in the Circar Kummernett ...	0	6	0	For each box of opium (export duty) ...	4	6	0
For sheep and goats per hundred...	4	6	0	Silk per bale... ..	0	6	
For each horse (transit duties) ...	5	0	0	Tamarinds per bullock load	0	6	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

There are twelve Chowkees in the Circar of Kummernett without including the Palooncha district.

General Summary of the Statistics of the Circar of Kummernett.

PERGUNNAS.	Villages and Hamlets.		Tanks and Wells.		Mons.	Ploughs.		Inhabitant's Houses.				Actual Gross Revenue.	Telugoo Schools.		Persian Schools.		Temples and Mosques.												
	Inhabited.	Deserted.	Total.	In repair.		Out of repair.	Total.	Rice Ploughs.	Dry Grain Ploughs.	Total.	Meerisdares.		Cultivators.	Moorpda.	Khoosbada.	Grand Total.	Vishnoo.	Mahadeo.	Durgah.	Ashcorbhanas.									
Pergunna Hava'ee	147	80	227	517	138	655	406	1590	4449	6039	1633	2941	2035	1367	7996	67,325	0	0	2	1	12	5	..	..	..	..	..	..	82
Kunnagberree	156	32	188	213	91	304	111	1178	2930	4108	1344	1834	1056	1352	5187	42,924	4	3	..	..	6	1	2	60	..	..	..	..	..
Madurab	59	56	115	81	16	97	43	180	2873	3053	481	894	436	249	1970	32,934	10	3	..	..	6	4	1	22	..	..	..	..	..
Anantagherree	71	17	88	281	81	362	180	481	1219	1700	901	1102	709	814	3017	33,921	3	0	..	..	16	7	..	18	..	..	..	..	..
Singarany	60	6	66	52	26	78	10	259	299	558	139	680	111	24	954	3,394	14	0	..	..	..	..	..	..	..	..	..	..	..
Condecondah Kuppulroy	65	23	93	616	21	637	326	743	697	1440	890	464	1516	1456	4326	42,656	12	0	..	..	..	..	..	..	..	..	..	..	..
Julpulle	65	2	87	432	83	515	293	934	417	1351	647	527	947	901	3022	28,465	6	0	3	..	8	11	..	19	..	..	..	..	..
Nalacondapulle	48	14	62	153	7	160	69	451	1375	1826	438	399	425	673	1926	22,486	0	0	..	..	8	10	1	8	..	..	..	..	..
Jagheer and Agrahum Villages	24	5	29	40	17	57	27	178	340	518	137	307	202	274	920	4,340	0	0	..	..	3	2	10	..	..	..	..	..	..
Hussanabad and Sunkragherree (Pergunnas, Palooncha Territory.)	342	..	342	..	..	..	..	..	..	..	..	..	..	..	9712	70,000	0	0	..	..	..	..	..	..	..	..	..	..	..
Total	1037	290	1297	2285	480	2865	1465	5994	14593	20593	6510	8749	7448	6611	29930	347,808	1	6	5	1	59	40	14	209	..	..	..	..	..
Sahyr Revenue .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40,000	0	0	..	..	..	..	..	..	..	..	..	..	..
Grand Total of Revenue Rs. 3,87,808 1 6																		Houses 39,630 at 4-76 inhabitants per house give 185,782 inhabitants in the Circar.										30,480 Total houses exclusive of Palooncha.	
																		Mussalman houses 1,162											
																		Hindoo houses 29,318											

III.—STATISTICAL REPORT ON THE NORTHERN AND EASTERN DISTRICTS OF THE SOUBAH OF HYDERABAD. By Dr. WALKER, Surgeon, H. H. the Nizam's Army, on Special Duty. Communicated by Major-General FRASER, Resident at Hyderabad.

Having traversed and explored a large portion of that part of Telingana which is subject to the rule of His Highness the Nizam, including the Circars of Nelgoonda, Kummernett, Warungul, Rangheer and several pergunnas of the Dewarconda and Maiduck Circars,—in other words that large tract bounded by a line a little to the eastward of Hyderabad, and contained between the rivers Kistna and Godavery,—I shall in the following report endeavour to give some account of the productions, population, administration of revenue and police of these districts, with remarks on the commerce, agriculture, and other arts practised by the inhabitants. It is my intention to give in a separate memoir, which will be accompanied by a map, a sketch of the geology of this country, compiled partly from the observation of others, partly from my own. In my first report on the Circar of Warungul some of these subjects have been to a certain extent anticipated, and to it I refer generally regarding the present memoir, supplementary to it, and destined to supply to the best of my ability the voids that necessarily occur in it.

Of the Mineral Productions.

The first of these in importance are the ores of iron, which are very widely and commonly diffused, occurring as they do not only in the granite and gneiss, but in the sandstone on the banks of the Godavery and in the limestone which bounds the Kistna.

The oxygenated iron ore, besides being found throughout the Warungul Circar, is met with in Kummernett particularly in the pergunnas of Kulloor and Anantagerry, where it is extensively smelted, and the ore sent to the other pergunnas of the Circar, and also to the neighbouring Circar of Dewarconda, to be there manufactured into metal. In the Godavery sandstone the brown clay iron ore is found existing on the surface in the shape of rolled pieces of various sizes, and in such abundance that no mining is required to supply the few furnaces, the ore being picked up from the sides and foot of the low hills. In the Elgundel and Maiduck Circars yellow clay ore is found wherever laterite rests on a trap hill; it is mined with facility and ease, the chief labour in furnishing the supply being the toil endured in ascending and descending the steep hills where it is found. There are furnaces at Lingumpilly, in the Maiduck and Tatapilly, Nizamabad, in the Elgundel Circar. The iron procured from this species of ore is used in the manufacture of steel, and a kind of monopoly of it is attempted by a Mogul who farms the famous steel manufacture of Konasamoondrum, near Neermul, from whence steel is sent to Persia and Arabia. The common mode of smelting is well known to be rude and imperfect, great labour is bestowed in the process and much loss incurred; about 8 or 10 per cent. of metal is procured from the richer ores, but the poorer, which possess, however, the advantage of being more easily smelted, scarce yield half that produce. Hoematite and pisitorm iron ore are found in many parts where the formation is granitic, but they are never manufactured into iron. Lumps, too, of titaniferous iron ore are frequently found in sinking wells, and sometimes superficially in the same formation; they are never smelted. A dark brown cubical iron ore is found in the tabulated limestone of the Kistna, but it is considered useless; it is not found in very large quantities. I have also seen specimens of glance iron ore found in the granite; it is sometimes used for antimony to sprinkle the eyelashes.

Copper.—Just below Yelgurup, a jagheer village belonging to Shums-ool-Oomrah in the Rangheer Circar, there is an island producing copper ore. Specimens of this ore, in all probability a carbonate (but I have been unable to procure specimens), were pronounced by that competent judge Dr. Voysey to be poor and unproductive. A tradition exists among the natives that this ore was worked by Frenchmen in the service of a great Talookdar with the title of Zaffur-ood-Dowlah, who held large districts of the Nizam's country more than eighty years ago; it is said that they found the experiment unsuccessful, and speedily gave it up. Traces

of carbonate of copper exist in the granite, particularly at Nelgoonda, but they are mere traces and afford no proof of that species of ore occurring to any extent.

Gold.—I was informed by Mr. Ralph, who twenty-five years ago acted as Political Agent at Paloونها, a principality on the Godavery detached from the Circar of Kummernett, that at a place called Goodloor or Godalore, a village on that river, where the Ramgheer and Kummernett Circars meet, a gold mine was profitably worked some sixty years ago by the Paloونها Rajah. On making inquiries I found that, although I could hear nothing of the mine, gold washings had taken place at a comparatively recent period in several nullas which feed the Godavery from the south; during the rains bunds were thrown across these streams, and at intervals when the rains ceased the sand and mud collected by these means were washed and sifted by a peripatetic race of gold-finders employed by a wealthy bunnya, who rented from the Paloونها Rajah the privilege of collecting the gold dust. Several years ago, from the excessive rent demanded by the Rajah, this search for gold was abandoned, and has never again been resumed; it is probable that the speculation was not a very successful one, or the proprietor himself would have carried it on at his own risk and expense. I fear there is no California in the Nizam's dominions; never did there exist a race so keen and eager to arrive at wealth by a short cut as the Indian, and had gold to any extent existed no oppression nor exaction would have stood in the way of their possessing themselves of it by fair means or foul.

Coal.—I have already sent a communication on the coal found in the bed of the Pranheeta close to its junction with the Godavery, and to this I refer. The subject of rendering the Godavery navigable has lately been discussed, and some interest has been excited in what would appear to be a measure very feasible and very advantageous. Should this scheme ever be carried out, the mineral, conveniently situated as it is, might be turned to profit. The surface of the coal measure has yet, so to speak, been merely scraped, but from the impressions of fossils found on the coal chiefly lepidodendrous plants there can be no doubt of a true coal mine being there in existence.

Diamonds.—No production of the Hyderabad country is so far-famed as the Golconda diamonds; we hear of them in our nursery, our greatest poets refer to them in their songs, and the gold of Peru is coupled with them in descriptions of unbounded or inexhaustible wealth. From Tavernier, who visited the mines and first described them, to the latest traveller in India, they have been objects of research and curiosity, and, though their glory has now faded away, an undying interest clings to their name.

The diamond districts are not properly in the Nizam's country, being enclaves bounded on every side by the territory of the Honourable Company, which yielded them to the Nizam by special treaty, as monuments of the world, fame of his dominions. Purteal, on the road from Hyderabad to Masulipatam and about fifty miles distant from the latter, is the principal village of the chief diamond district; along with the other enclaves, three or four in number, it yields, not from its diamonds, but from the usual sources, an annual revenue to the Hyderabad state of fourteen thousand rupees, and is held in jagheer by Ghoolam Hyder Khan, a personal favourite of the Nizam, and recently a candidate for the vacant Dewanship. The search for diamonds is limited enough, but from this no such inference should be drawn as that the Nizam's Government is necessarily harsh or oppressive, for in truth the mines are all but exhausted, especially at Purteal, where the numberless knolls and pits hollowed down to the underlying granite fully attest the extent and strictness of the search.

So struck was Dr. Voysey with this fact that he suggested that the present villages should be removed from the sites they now occupy, and thus afford a virgin ground; but Terminus would not move for Jupiter himself, and the idea thrown out, though a good one, could scarcely be acted on, with the Indian veneration for the mighty god of landmarks and boundaries.

There were, when I visited Purteal in May last, two cisterns, or houges as they are called, at work, one let to a Mussulman, the other to a Telinghee peasant

at eight annas a month for each cistern, two of which find their way into the pocket of the Havildar of the village, and six are credited to the Jagheerdar. Such is the amount of rent derived from the Golconda mines, scarcely eighteen pence a month, and not a pound sterling a year, if we exclude the occasional fines obtained from soucars of the neighbouring town of Kondapilly, who for the sum of a few rupees are permitted the privilege of digging for the gem. The diamonds found are of a very small size, and if the searcher realizes four or five rupees a month for his trouble he deems himself fortunate. The diamonds are, in the language of the searchers, black and white; a rupee is given for the weight of a grain of jowaree for the first sort, and two rupees for the second.

Such is now the state of this valley of diamonds, the steward of which, the Havildar of the village of Purteal, was well pleased to accept a small *douceur* for his trouble in showing me over the ground, which he did with a civility not always met with in such functionaries. As in other parts of India, the natives are strong in the belief that diamonds grow, and it is perhaps this faith which prevents the search from being entirely abandoned.

Garnets.—Coarse garnets are very common in the Kummernett Circar, particularly about the kusba of Kummum. They are pounded and manufactured by means of lac into wheels for sharpening knives and swords, a purpose for which their hardness well fits them. Precious garnets are picked up, particularly after the rains, in the nullahs which have their source in the Gareebpet hills in the Khanagiri pergunna of the Kummernett Circar; and close to the Palooscha territory the remains of a shaft sunk twenty-five years ago by Mr. Ralph, by the advice of Dr. Voysey, are still to be seen. I understand that it was sunk to little advantage. The garnets found are neither very large nor very valuable, but, such as they are, they are cut into beads and ring-stones, and usually sent for sale into the Company's country, the common people of the country where they are produced seeming to care little for them as ornaments. Previous to being cut they are tested by being gently struck with an iron mallet; if they remain whole they are considered good, and fit for the use of the lapidary; a string of a hundred beads varying in size from a large to a small pea cut into octahedrons may be had for two or three rupees. A tax of one pice for every seer of garnets collected evinces the little value attached to them in their rough state.

A tradition exists that during the reign of Aurungzebe there were extensive mining operations for procuring the gem, and that one of the Gareebpet hills was undermined, that the roof fell and destroyed many hundred miners, and that since that time garnets have only been sought for in the nullas. I could observe no appearance to support this tradition, the garnet hill being indeed less shattered than many other granitic hills.

Sapphires or Kyanite are found along with the garnets, but they are never cut.

Amethyst.—This stone is found in the quartz veins of the granite, and is by no means rare, in every part of the Hyderabad Soubah; like garnets it is cut into beads and ring-stones; it bears about the same value as the garnet.

Corundum and Emery.—Both these varieties of the same mineral are found in the nullas leading from the Khanagiri hills in the Kummum Circar, and also in the Palooscha country. They are picked up in the rains, and are sold for a trifle to lapidaries, for cutting and polishing gems, and also to sicklegars or armourers, who pound them and manufacture them, as they do coarse garnets, into sharpening wheels to give a fine edge to swords and knives. The corundums are of two colours, a dingy red and white; the last is looked on as the harder and more valuable of the two.

Rock crystal and rose quartz are common, and sometimes cut, like amethysts and garnets.

Tabular limestone, or what has been called limestone of the blue slate formation, is very abundant on the left bank of the Kistna, both in the Anantagiri pergunna of the Kummernett Circar, and in the Wazirabad pergunna of Devarconda; it is coloured various shades of red, blue, and white;

and, besides being burnt for mortar, affords serviceable material for building and roofing. The white slabs are used for inscription tablets on tombstones, and have been tried with some success in lithography; they are comparatively free from veins of the crystallized carbonate of lime and of quartz, and large slabs are to be procured without a flaw or a stain; a slab of this stone is used at the Residency Lithographic Press, and it is said not to yield such a clear print as the stones procured from Europe. This inferiority is in all probability owing to the superior hardness and close texture of this one specimen, and might not be applicable to every variety procurable from the same formation.

Steatite.—A coarse kind of steatite is pretty commonly diffused, being met with at several places in the Warungul Circar, and also near Sircilla and at Maytpilly in Elgundel; it is formed into pots, kuttoories, and furnishes children with writing pencils, and the poor classes of Lingayets with lings, after they have been duly consecrated by their Gooroo.

Subcarbonate of Soda, &c.—When the rains have ceased, and generally throughout the dry season, a substance is found in many places covering the granitic sand like hoar-frost: this is the khar or khara neemuck of the Hindoostanees, and has for its chief ingredient the subcarbonate of soda, but mixed with certain proportions of common salt and the muriate of magnesia, the latter salt making the substance very deliquescent; it is collected by the Dhobees and used by them, and also by the manufacturers of glass; in some parts this admixture of salt bears a large proportion of the sand when it is mined and rudely separated from it. Limestone for the purpose of mortar is everywhere met with; it is sometimes very hard, with the appearance of having been in a state of fusion; at other times it is nearly as soft and friable as marl, and well adapted for the use to which it is applied: the decomposed granite forming a plastic mud is well adapted for building huts, the frail walls of which bear more vexing from climate than would at first sight be conceived; it is burnt into bricks; when ochreous it is used for painting the walls of houses, and furnishes materials for the potter's wheels. The felspathic clay, often of a brilliant white colour, would doubtless be good material for the finer kinds of porcelain, but it is never used by the Telinghee Coomars.

Lithomarge and lithomargic earth are found in the sandstone and schorl, and black tourmaline in the granite, but neither are turned to use or ornament. Granite is very rarely used for house-building, but the walls of all the old and strong forts are constructed of it, and from the appearance of some rocks it is clear that they have been operated on for this purpose to a great extent. Captain Newbold, in the *Madras Journal of Literature*, has explained how these blocks were separated. The sandstone is more used for house-building, but so plentiful is the timber in the country where it forms the surface rock that the greater number of the houses there are constructed of bamboo and wood.

Vegetable Substances.

These may be conveniently divided into spontaneous and cultivated; and first of the forest trees which afford serviceable timber. The *Tectona grandis*, or the teak tree, grows in many parts of the country, but owing to its uniformly stunted growth in the granitic country it is nearly valueless, being used only for the rude agricultural implements of the Coonbees. On the sandstone it grows to be a large tree, and tradition points to a period when valuable teak timber was in existence south of the Godavery, where now, owing to the carelessness and indifference of the Government in preserving its forests, it no longer exists, nor indeed does valuable teak at present grow in any part of the Hyderabad territory; what is commonly known by the name of Godavery teak is the produce of the territory of the Rajah of Nagpore or of his tributaries the Gond Rajahs of Bustar and Bhopalputtem.

Bhopalputtem at one period yielded almost the whole of the Godavery teak, but of late years it has been getting scarce there. Bustar, though its teak forests have not been wholly untouched, promises to yield for some time a goodly supply,

and if that feeder of the Godavery which issues from the Bustar country could be made available for floating the timber down to the main stream it could be conveyed to the coast at no great outlay, but the insalubrity of the country is very great for at least eight or nine months of the year ; the only period that a European or a native of the coast could with safety or profit enter the country is between the months of February and June.

The *Dalbergia latifolia*, yielding the blackwood with which chairs, tables, and household furniture generally are made up, is a common tree, and is cut down and dressed in the Palooncha and northern pergunnas of the Kummernett Circar, from whence it is transported by Brinjarries on carts to Masulipatam and the eastern coast. This timber is worked easily and looks well, but it is very brittle, and the furniture made of it possesses no great strength or durability. The natives avoid felling timber while the moon is on the wane, under the impression that when cut at this time it is more apt to rot, and more liable to the attacks of white ants. With respect to teak this rule is not observed, that tree being cut without reference to the age of the moon, the aromatic oil with which it is impregnated being considered sufficient to protect it from rot and from the ravages of white ants.

This precaution may not be so fanciful as at first sight it would appear,—the same influence which so notoriously affects the animal frame possesses in all probability a greater energy when acting on the less perfectly organized vegetable.

Schrebera swietenoides, the weavers' beam tree, gives a strong timber not liable to warp, but it is of a dingy colour, and difficult to work from its hardness. It is common.

Diospyros melanoxylon, Ebony tree, exists in the Godavery forests, but no good or valuable ebony is attainable now, owing to the same causes which effected the extinction of serviceable teak.

Of the other trees that yield a good timber may be mentioned the *Pentaptera coriacea*, *Conocarpus latifolia*, with which axles for carts are formed, *Nauclea cordifolia*. *Bignonia quadrilobularis*, *Mimosa xylocarpus*, *Mimosa Sirissa*, *Terminalia Bellerica*, *Strychnos nux-vomica*, *Ulmus integrifolia* ; the male bamboo, a rare production of the Nizam's country, grows near Palooncha. Of the less useful timber trees that compose the Godavery forests may be mentioned the *Butea frondosa*, everywhere most abundant, the *Carea arborea*, *Barringtonia acutangula*, *Ixora parviflora*, *Ficus comosa*, *Erythrina suberosa*, *Sterculia urens*, *Buchanania latifolia* and the *Bassia latifolia*. The lower jungle is composed of the *Grewia orientalis*, *Oxalis scandens*, several species of *Gardenia*, the *Pisonia aculeata*, the *Trophis aspera*, and the *Weberia tetrandra*. The immense climber the *Butea grandiflora* throws its branches over the groves intermixed with the *Sifonia nutans*, *Combretum ovalifolium*, and the *Ventilago madraspatania*.

Gums are yielded by the *Conocarpus latifolia*, by two species of *Terminalia*, *Buchanania latifolia*, and *Garuga pinnata*, which afford, particularly the three first, pure gums. The *Cochlospermum gossypium* and *Sterculia urens* a gum similar to the gum tragacanth. Three species of *Gardenia* yield the gum resin called Decamulle, and the *Buteas* the East Indian kind.

Dyes are afforded by the *Oldenlandia umbellata* and two species of *Morinda*, one of them cultivated, which give a red colour of different shades to cloth. A coarse kind of indigo is prepared from the *Indigofera cœrulea*, yellow from turmeric, and the flowers of the *Butea*. The mango bark dyes a dirty yellow, and the *Chloroxylon swietenia* is said to give a yellow juice on its bark being pierced ; the bark of the *swietenia febrifuga* dyes cotton a dark brown, and the capsules of a small herbaceous shrub called the *Croton plicatum* give turnsole ; all these plants are common.

Oils.—Besides the castor, tillee and linseed oils, all of which are grown, oil may be expressed from the seeds of the *Dalbergia latifolia*, *Hypercanthera Moringa*, and a good drying oil from those of the *Buchanania latifolia* ; of the last an English pint of oil is to be obtained from two seers of seed. The seeds of the *Bassia latifolia* also give an oil.

Hemp, Flax, and Cordage.—The Sunn plant, *Crotalaria juncea*, is cultivated, as is also the *Hibiscus cannabinus*, the Umbarrah, and their fibres are made use of for many purposes of hemp.

The *Linum usitatissimum* is never used as a flax, being cultivated solely for its seeds. The *Cannabis sativa* is grown in gardens, not as a hemp plant, but to afford the noxious and destructive bhang. The *Sansevieria zeylanica* is a common plant growing in sheltered places, and the climber the *Asclepias tenacissima*, pronounced by Roxburgh as the plant that yields the strongest fibres of any in the vegetable kingdom, is to be found in the forests near Chinnoor and Mahdupore, where the fishermen beat it out into a flax for their nets. Cordage for common use is obtained from the inner bark of both the *Buteas* and several of the *Bauhinias*.

Of Medicinal and other useful Plants.—Among these may be mentioned the nux-vomica and clearing nut tree, the *Swietenia febrifuga*, the *Wrightia antidysenterica*, the *Hemidesmus indicus* or indian Sarsaparilla, the *Asclepias gigantia*, and *Piocera*, the juice of which yields emetine, a half-grain of which I have found to produce copious vomiting; the *Justicia paniculata*, the chief ingredient of the celebrated *Droge-amère* of the French; the *Gentiana verticillata*, collected by the natives and used as a bitter; the *Celastrus nutans*, from the seeds of which is distilled the *nigrum oleum* given as a cure for beriberi; the *Chebulic Myrobolan*, which is also used to dye cloth a black colour; the *Senna absus*, yielding the Chaksoo seed, which when pounded makes an excellent application in ophthalmia; the *aristolochia indica*, lately used as a remedy against snake bites; several *Sidas*, and other malvaceous plants used as demulcents, and externally as poultices. Many other plants used in native medicine are produced,—the *Pedaliu Murex* which thickens liquids; the *Nerium oleander*; the *Cassia auriculata*, the bark of which is also used in tanning; the *Argemone Mexicana*; the *Jatropha Curcas*, used also as fence, the *Plumbago zeylanica*, *Guilandina Bonducella*, *Lavandula Carnosa*; *Sphæranthus indicus*; the *Terminalia alata*; *Bærhaavia diffusa*. Mostly every member of the *Asclepiaceous*, *Euphorbiaceous*, and *Apocynaceous* families that are procurable are used in native medicine.

In my report on Warungul I have named the chief edible fruits, vegetables, and greens that are met with, and to it for information on this head reference is made. The palms also and their produce are given there.

Other useful substances.

Honey and Wax.—There are four species of bee common :—

1st. The Joontee Taynee, a small species, the honey of which is deemed medicinal.

2nd. Mosalee Taynee, a yet smaller bee, the honey of which is in little esteem, but it is eaten by the Dhungurs; the wax is considered useless.

3rd. Tooroosao Taynee: wax and honey of this bee good and useful; they have their hives in hollow trees.

4th. Paddar Taynee.—This species has its hive in the rocks, and is in all probability the bee spoken of in the Psalms. Both these last-named bees are destroyed, by means of smoke, for their honey and wax. Part of the honey is sent to Hyderabad, part consumed in the country, where it is eaten with bread. The wax is brought and sold in the kusbas by Dhungurs, Koewars, and Gonds to the Bunnyas, who send it chiefly to Hyderabad and the coast. They seldom pay these people in money, but give grain in barter; when they pay in coin they give a rupee for eight seers of the wax.

Lac.—Lac is found on both banks of the Godavery, but more abundantly on its northern or Nagpore side; it is brought in and sold, as the wax and honey are, the dye is used to dye tusser silk and worsted thread for the manufacture of Warungul carpets; the lac itself is used in preparing ornaments for the armourers, &c., but a good deal of it is thrown away after the dye has been removed, which is done by pounding and washing. Tamarind juice is used to dissolve it preparatory to its being employed to dye thread. Considering the extensive and dense forests, which extend hundreds of miles to the north of the

river in all directions, and which contain all the trees that the lac insect usually selects for its peculiar deposit, it may be assumed that if the demand for this substance were great the supply would be commensurate with it, and that were the Godavery rendered navigable it would furnish no mean article of produce for conveyance to the coast.

Buffalo and stag horns are collected by the jungle people, and sold by them to the Bunnyas, who send them to the coast to be manufactured into work baskets and handles for knives, &c. A few years ago a party of Burmese made their appearance in Telinganah for the purpose of procuring the skins of kingfishers, which in Ava are used to decorate fans and dresses; they caught the birds by snaring them, and returned to their own country with a large supply; they remained in the country many months, and were left unmolested by the Government authorities, who only exacted a small tax on the produce of their labour; their strange dress and manners, and the object of their search, so perplexed and surprised the simple peasants of Telinganah that their advent will be long remembered.

Rice.—This grain is most extensively cultivated in Telinganah; the slovenly mode of its culture in the Circar of Warungul has been already dwelt upon, and as far as the districts to the southward and eastward are concerned similar carelessness and defective skill are everywhere manifested, but in the Maiduck Circar and the western parts of Elgundel much greater labour and care are bestowed in raising the rice crops; double cropping is there also the rule, whereas in the other districts it is the exception; it is not only that the ploughings, sometimes amounting to six or seven, are more frequent, and that the soil is more diligently worked up for the reception of the seed, but the manuring is most carefully attended to, and on every field side may be seen heaps of cowdung, and throughout the adjacent jungle depôts of leaves of all the more common shrubs, collected for this purpose; as may be expected, the average returns are much greater, varying as they do from thirty to forty. Much of this superior industry may be ascribed, in Maiduck more especially, to the village system existing in full operation, and to the cultivators possessing a real and not a nominal head and referee. The Patell there exists in the plenitude of his power and influence, and is not absent altogether, or shorn of all legitimate property and authority, and degraded to a spokesman of his caste, as is the case to the eastward. He holds his village direct from the Talookdar, without an intermediate Deshmookh to rackrent it, nullify his authority, or cozen him of his dues; his interest and his sympathies are with his ryots, and he is thus bound to them by a hundred ties.—Many varieties of this grain are in cultivation at Maiduck, the finer kinds more especially, which are grown for the Hyderabad market. It is said that they amount to no less than two hundred, but many of these are doubtless merely fanciful, and it would be tedious as well as unprofitable to enumerate them, or state the different properties, often whimsical enough, attached to each. Buffaloes are much used at Maiduck in ploughing the rice fields; transplantation is in very general use, as is also the employment of sprouted seed.

Sugar.—This crop is also in a great measure confined to Maiduck and the western pergunnas of the Elgundel Circar, and the same care shown in the cultivation of rice is bestowed on it. It is not that the other parts of the Nizam's Telinganah are unfitted for the growth of sugarcane, but the poverty of the ryots prevents them from embarking in a work which not only requires a superior degree of skill, but the possession of a certain capital; very high rents are demanded for sugar ground, the lowest Rs. 150 per beega, and the highest Rs. 250 when the wells are in good order. A more moderate rent is asked when the Coonbec has to repair the wells at his own charge, but even then it is many times higher than the rent paid for corn ground. The juice is expressed by the common screw mill, which may be made up for Rs. 5, and of which a representation is given; it will be seen that in no respect it differs from the machine in common use all over India. The use of the pestle and mortar mill is all but abandoned, although from the large granitic mortars that are seen in many fields there is abundant evidence to prove that at one time it was generally employed. The

produce of a beega runs from twenty-five to ten kandeas, twenty and fifteen kandeas being the average intermediate crops between these two extremes. There is no peculiarity in the cultivation of the sugar plant that merits being mentioned ; the fields are usually fenced with the milk bush hedge, and not without reason, as the cane forms a tempting object of repast not only to man, but to wild hogs, raccoons, &c., which occasionally break through all fences to get at their favourite food. The goor is reboiled at Maiduck with chunam and ground bones, and manufactured into a raw sugar, the coarseness of which is shown by its name, *lal shukkur* ; it is prepared chiefly for the Hyderabad market.

Cynosurus Coracanus.—This grain, called by the natives *raggy*, is cultivated much after the manner of the millets in the Nelgoonda and Devarconda Circars, and in the Madura pergunna of Kummum it is reckoned a wholesome and cooling grain.

The *Verbesina sativa*, the seeds of which yield a coarse kind of oil, is grown at Maiduck and in the Kummum Circar ; little care is bestowed on its cultivation.

The *Arachis hypogea*, or earth nut, is sometimes grown in gardens, but it is not a commonly cultivated plant.

For the other grains, pulses, and cultivated produce generally, with their mode of culture, I refer to my report on Warungul, which embraces them all, with the exception of the three last mentioned, that are found in this portion of Telinganah.

Domestic Animals.

The white cattle of Telinganah have already been mentioned ; they are found in the Warungul, Elgundel, Kummimmitt, and Ramgheer Circars. At Maiduck the cattle are of a very inferior breed, being small and apparently of a stunted growth, and little adapted for carriage or draught ; they are of all colours. Towards the Kistnah the Telinganah cattle appear to be improved by a cross with the Nellore breed ; they are strong and well-shaped. The Maiduck buffaloes, on the other hand, are superior animals to those found to the westward and the south.

Sheep.—There are two breeds of sheep : one the common sheep, differing little from the European variety save in size, being much smaller ; the other an animal that in some respects more resembles a goat than a sheep, having hair instead of wool, but the shape of its head, its horizontal horns, and other points of resemblance determine it to be a sheep. This breed is prevalent in Kummum, Ramgheer and the Kistnah Circars ; its coat is without value, but it is a larger animal than its congener, and more easily fattened ; the wool yielded by the first variety, although of no great fineness, is manufactured into carpets, cumblics, &c.

The goats are numerous but present no peculiarity.

The donkey and pony are, in all the Circars, miserably inferior animals with every mark of degeneration.

The hog is the same unclean, shapeless and loathsome animal as it is throughout India, acting as scavenger to the village, and occasionally used for food by the lowest and most degraded castes.

There is nothing peculiar about the poultry ; there is no objection to rearing them for food, such as exists in the Mahratta country ; they are eaten by all castes save Brahmins and Bunnyas, and a few others who affect high caste. Ducks and geese are never reared.

Population.

The Brahmins are divided into Swamarts, Ramanuj, and Madwacharee : the first followers of Siva, the two last Vaishnavis ; these are divided into a number of sub-sects which again are further subdivided. The Swamarts, who hold the first Veda in the highest veneration and who are supposed to follow its precepts, are called Rookveds, and are separated into three sections, the Wurnassaloo, the Kummoorookooloo, and the Kummeekumloo, the last originally from the Karnatic. The first two intermarry, but do not take wives from the last—in all probability because they are foreigners ; all eat together. Those who affect the second Veda are called Yejoorvedees, and, like the former one, are subdivided into—

1st Mathinjunooloo, 2nd Telingani, 3rd Mowkeenaroo, 4th Ahraduloo, 5th Yajneawulkooloo, 6th Kassornaroo, 7th Velnaroo. Of these the first are deemed the highest caste; they make poojah to the sun when they bathe, and also to the full moon. The Yejoorvedees, with the exception of the Ahraduloo, who are Lingayets, may intermarry, generally speaking, with the first two classes of Rookveds, and the offspring of such marriages may, without derogation, look on the first Veda as the more holy book; but then again there is little intermarrying between the different denominations of the Yejoorved: they keep in their marriages to their own sect, with the exception of the Veluars and Telinghees, who intermarry sometimes. There may be a good deal of sectarian hate at the bottom of this, for intermarriages are determined by the parties having the same gooroo, whose interest it is to promote matrimonial alliances among the members of his own flock. The Veluars are common in the Nizam's Telinganah, the Moorkenars to the south of the Kistnah, the Yajnahs towards Masulipatam, and the Mathinjunnum about Maiduck, where there are numbers also of the Wurnassooloo. There are a few followers of the third Ved, called the Samvedis, who pay adoration to both Vishnu and Mahadeo. The Ramanuj are divided into Wurhullah and TENGHULLAH; these eat and intermarry, but marriage of kindred is strictly forbidden. The chief external mark of this sect is their eating in secret. They are also divided into sects according to their Veds.

The Madwacharyahs are looked on as foreigners; their great god is Hunnooman, whom they describe as an incarnation of Vishnu, by a singular and very palpable anachronism. Both the Ramanuj and Madwacharyaloo are branded on the arm by their gooroos, from which ceremony the Swamarts are exempt. The Lingayet Brahmins lord it over their disciples, who receive them with great honour; they are held to be by the other Brahmin sects the worst of heretics.

It is lawful for a Brahmin to marry four wives, provided he allows a year or two to elapse between each marriage, but this licence is indulged in by the rich only, and that too but seldom. A Brahmin usually contents himself with one wife, except in cases of sterility, when he takes another, but he is bound to support his first wife, repudiation not being permitted, so that when the wife of a Brahmin commits adultery there is nothing for him but to abandon her. Brahmin girls are married from five to eight years of age, but not afterward, except in cases of extreme poverty. By their Shasters an unmarried girl who attains the age of eight should be taken to some holy stream and consigned to its current, but this is not practised more frequently than the Spartan punishment for incontinence was enforced, and for the same cause.

The Ramanuj Brahmins are Purists, and will not perform poojah to Hunnooman, which all the other Brahmins do. There is a temple at Kotaguttoo, on the western borders of the Warungul Circar to the fish Avatar of Vishnu.

To the better castes the Ramanuj and Ahraduloo Brahmins condescend to act as gooroos, but the lowest castes they will not approach, who are in consequence obliged to have recourse for spiritual advice, consolation and intercession to Jungums, Dekkulwars and other religious mendicants. The Brahmins affect to sacrifice no live animal, but leave the slaughter to a race of beggars called Pubblewars, on the outbreak of disease, when they wink at, or secretly encourage, the usage.

Poojari Brahmins are Ramanuj, and are then called Urtchuk, and occasionally a Swamart of the Telingani sect. Mudwacharyaloo are seldom Poojaries, and when they are so devote themselves solely to the service of Hunnooman, as at Racherlah, in Elgundel, where there is a shrine to that deity, held to be very sacred. All secular Brahmins are called Veopari, when they take to reading or to begging they are called Vydee. There is no necessity imposed on these last to remain Vydees, they can secularize themselves at any time without loss of caste. Brahmins are allowed the use of opium, tobacco, and even ganja without loss of caste, although when they make an intemperate use of them they lose their reputation and character, like the rest of the world; they are prevented the use of all kinds of fish and flesh, of carrots, radishes, onions, garlic, the fruit of the palmyra tree and vine, and every kind of intoxicating liquor, whether from the palm, grape,

mawah tree, or sugar. Most Brahmins, particularly the young, violate the rules of their caste, even to eating flesh and drinking to intoxication, but, however awful the penalties denounced against such offenders in their sacred books be, the modern discipline has become much relaxed, and a fine to the gooroo or a dinner to their caste is a very common set-off against faults which should be visited by the highest penalty.

The Swamart Brahmins are sometimes found Poojaries in Sakti temples, but the office is looked on as degrading, and is usually performed by a caste called Tumbrees, who arrogate to themselves, although originally a low caste, a certain consequence reflected from their office.

With the exception of Rajpoots, who are all of them foreigners, or the descendants of foreigners, the second original caste has no representatives, properly so called, in Telinganah. The Rachewars, Yelmas, and Kummewars aspire to the honour of being Chuttrees, but their claims are universally disallowed by the Brahmins, and are wholly unsupported save by the songs of the Bhats, who, like true heralds, find readily a genealogy for a race when they are well rewarded for their trouble.

The Bukkals or Bunnyas are divided into Maytewar, Bheerewar, Vegnawar. Jains are also included among the Bunnyas, although improperly. There is no Jain resident in this part of the Nizam's country. These castes do not intermarry, nor eat together.

After the Bunnyas come either the pure Sudr caste, or those who have attained that caste by mounting from a lower grade, in consequence of the wealth or superior military prowess of its members.

1. The Rachewar, who are admitted by the Brahmins to be pure Sudrs, are not a very numerous class in the Nizam's country, but some are found in the more easterly districts; they are prevalent in Rajahmundry.

2. The Yelmahs or Yelmawars are, even by their own showing, not pure Sudrs, but as many Zemindars (Deshmookhs and Desaees) are of this class, as the better-conditioned of them veil their women, and as all are reckoned good soldiers, they have attained their present position, and maintain it notwithstanding the gibes and sneers of the Brahmins; it is even said that they had the lowest of all castes, certain Chamars who were employed as soldiers by the last kings of the Hindoo dynasty of Warungul, as their progenitors; they are, generally speaking, cultivators, and are very numerous throughout the Nizam's Telinganah.

3. Kummewars as to caste are much in the same predicament as the Yelmas, their place in the fourth class being denied by the Brahmins; the more wealthy of them veil their women; they are also agriculturists, and are found chiefly in the Kummemmett Circar, where there are a Zemindar or two who are Kummewars.

4. Coonbees or Capoowur: of these there are seven or eight different sub-castes, who eat together save with one branch who are Lingayets, but who do not intermarry.

The Mootal Capoowur is reckoned the highest in the scale, from the circumstance of many Zemindars belonging to it; they are found numerous about Warungul. The Gonee Capoowur are common in Elgundel, the Pakenat at Maiduck, where the Zemindar was of that caste; one or two of the sub-castes do not drink, the women of another do not wear cholees.

Telinghees, a lower caste of cultivators, divided into Telinghees properly so called, Udrachawars and Munoorwars; these are protected by the Yelmas, from sympathy, who assert that the Yelmas, Kummewars, and Telinghees are middle-born men, thus tacitly admitting the inferior caste and origin of all. All these castes, including the Bunnyas and Brahmins, are permitted the use of the palkee in their marriage processions. The votaries of Vishnu, who are numerous among them, prefer incremation to interment when they can afford it. All the Brahmins with the exception of the Lingayets burn their dead, as do the Bunnyas.

After these come the Gwallaroo or shepherds, of whom there are no less than twelve sub-castes, who eat together but refuse to intermarry; they are a wild,

uncultivated race of men, but with more intelligence than their rugged appearance would suggest ; they are great authorities in all that relates to the weather ; they collect simples, and are supposed to be well acquainted with the nature and properties of jungle plants and trees ; there are among them worshippers of Siva and of Vishnu, the first burying, the last burning, their dead, but to the Brahmin gods they pay but a lip adoration,—they have their own Pan, Molunnah. Then come the whole of the mixed castes, among the foremost of whom are the Panch bhaee or the principal mechanics, carpenters, blacksmiths, braziers, stonecutters and goldsmiths ; their great protector and god is Vishnu Brahma ; they all wear the sacred thread, and are generally a respectable class of men ; they eat together and intermarry, their marriages are conducted with the greatest privacy and decorum, no procession, shouting or music. There is a tradition among them that the goldsmiths performed the functions of Putwarrees of villages before Brahmins assumed or usurped that office, but this is in all probability a tale of the Brahmin priesthood, who affect to despise their secular brethren, as men who have for mere worldly purposes abandoned their high calling. Many of the Panch bhaee are Lingayets, others worshippers of Siva, others of Vishnu ; the last, as usual, burn their dead ; they eat flesh and drink toddy, but it is said that in the olden time they were more temperate than they are now.

The Tumrees are originally a low caste, mere tom-tom beaters, but from becoming Poojaries they affect some degree of consequence, which is acceded to by the lowest castes.

The lowest castes consist of—

Coomars, potters.

Dirzees, tailors, of whom there are two castes.

Itinerant blacksmiths, who go about from village to village like tinkers.

Tellies, oil-pressers, of whom there are three castes, one who use two buffaloes or bullocks to their mills, another who employ one bullock, and an itinerant order who belong to neither.

Nuqqash, painters and lackerers.

Rungrez, or dyers.

Thandrawars, tusser weavers, and breeders of the insect.

Putkaries, silk weavers.

Jullaees, cotton weavers.

Bhooes and Coolies, palanquin bearers and fishermen.

Dhobees, washermen.

Hujjams, barbers and linkmen.

Madurwars, bamboo workers.

Dhers, several of the lowest castes included under that name.

Kullals, toddy drawers and vendors of spirits.

The Lingayets are looked on by the intelligent Brahmins as having forfeited all title to caste. Jungums are their priests. Belgewars are Lingayets, and are husbandmen, shopkeepers and gardeners.

The Chamars are shoemakers, leather dressers, and sometimes saddlers. Last and most degraded are the Mehters or sweepers, who perform along with the Chamars the meanest and most degrading offices, are executioners, offal and carrion eaters, sharing the dead bodies of animals with the kite and the vulture.

Besides the Sunnyasees, the Brahmin monks and friars, and the Satanies, men mostly of the better castes, who affect an ascetism which they seldom in reality practise, and who are the regular clergy of the castes from which they spring, there are a host of beggars, who prey on all castes, every one having such clients attached to it, and exact alms by importunity, threats and imprecations : with the more timid and sedentary artizans these sturdy beggars are regarded with no common fear mingled with a certain degree of commiseration ; some castes, such as the Dhungurs, have four or five different sets of these dependants, the Coombees have two, the Chamars three, and so on. Some of these mendicants, even of the lowest castes, can read and write ; their women are glee-women, prostitutes and fortune-tellers.

The Mahomedans who practise trades are in all their ideas Hindoos save that they observe the Mohorum feast instead of the Hooley, and go to the Kazee instead of a Satanie in their marriages ; they cannot understand the Koran nor can they listen with advantage to those who expound it in Hindostani, few of them having acquired that language ; they affect caste, look on the Ashdorkhanas as their temples, and invoke some departed saint as their god.

The trades they follow are—

Cotton cleaning, which is performed by the Lathabs.

Woollen carpet weaving by Mohmen.

Dubber or coopee making by Boozelgers.

Cotton carpet weaving by Galleecchagars.

Sicklegars are Mahomedans, and are armourers.

There is also a caste of Mahomedan sweepers called Khakrob.

The Woodewars and Yerkulwars were described in my former report, and also the Koewars, those Telinghee-speaking savages, who have acquired a certain degree of civilization from the inhabitants of the plains, having been instructed to till the ground about their huts, and cultivate the coarser kinds of grain ; they are slaughterers of kine, and beef-eaters, not even Hindoos in name. There is yet a lower degree in savagery exhibited by the Gonds, the most wretched and degraded of the inhabitants of southern India. Roaming about the trackless forests that skirt the Godavery on its northern bank, these miserable creatures share with the inferior animals, the tiger and the wild buffalo, the terrible penalties of the primitive curse ; their life is a constant struggle to maintain existence : sowing no grain, planting no trees, they are cast on rude Nature for a subsistence. Nothing that is not actually poisonous, which they can masticate, do they reject ; the most tasteless and least succulent fruits, the bitterests of herbs, the most loathsome flesh and carrion, are accepted as bountiful gifts from their hard-hearted step-mother, who is bountiful only to those who labour. The seeds of the bamboo and of the uncultivated grasses they have in lieu of bread. A few who collect together in villages may possess buffaloes, breed fowls, and cultivate coarse grain, but the genuine Gond is a true savage, with the instinct of the inferior animals ; the sight of cotton cloth scares him, and sends him in fright and terror to his hiding place in the jungle : it is the garment of civilized man, whom he looks on as a natural foe.

Such are the castes found in Telinganah ; at one time I thought of giving them in the order of their rank, but this was impossible, that not being fixed among themselves, but determined often by the condition of the members, so that the inferior caste in one Circar may be superior in the other. The Brahmins, the only legitimate arbiters in such matters, will not, through contempt or apprehension, determine it, and endless disputes often arise as to precedence. The truth is, except among the holier and more learned Brahmins themselves, whose position at the head of all is universally conceded on religious grounds, caste is a civil rather than a religious distinction,—a wealthy shepherd or even a moneyed Kullal will often have concessions made to his caste in one locality that are contemptuously withheld in another. The eating of beef and of carrion are the sole conditions that can exclude a Hindoo from a certain degree of respect if he merits it. Some most whimsical rules with regard to eating particular kinds of food are observed. A Brahmin will not eat a carrot because the central part bears some resemblance to a bone, and the outer part to flesh. The Panch bhaec decline eating the Phunnus or Jack-fruit because their clients, or Mungnewallahs, are called Phunnasooloo, and they might be reproached with dieting off their dependants. Songs, it is said, govern nations ; it would appear that nicknames sometimes regulate castes ; what we read of in books, of one caste necessarily being engendered by the admixture of two others, is in fact not applicable to the Telinghee population.

Doubtless these origins are strictly defined in the sacred books, and no Brahmin with any pretensions to learning is unacquainted with them, or ignorant, for instance, of the circumstance that the child of a Brahmin woman by a man of the Sudr caste is a Chandalah, or sweeper, and in all probability if an individual sprung from such an alliance repaired to a sacred college for information respecting his

origin he would be told that he was the lowest of the low. But he would be a Chandalah only among Brahmins, perhaps only among the Brahminical priesthood. There can be little doubt that such Chandalahs, properly so called, are frequent in a country where the Sudras are among the wealthiest and most powerful class in the community, and where the virtue and morality of the Brahmins are not rated very high, but the offspring in such cases is a Zemindar's son, with caste not particularly well defined, perhaps, but who would shrink with horror from the offices to which the Shasters would consign him. Bastards, except where the woman is a Brahmin, usually follow their mother's caste, but the bastard of a Brahmin with a woman of his own caste is looked on as a Brahmin, though with a certain stigma attached to his birth.

Marriages.—Marriages are commonly celebrated before the parties have attained the age of puberty, but to this there are exceptions, in the marriages of the Yelmas, Kummawars, and Motat Coonbees, who delay the ceremony till that period ; amongst the lowest castes marriages take place in childhood. A certain portion and outfit are expected with the bride if her parents are in good circumstances, but the poorer classes, although they do not purchase their wives from their parents, make them a present of a few rupees, in consideration of the expenses of up-bringing. The marriage portion given by a Brahmin in moderate circumstances to his daughter is twelve and a half tolas of gold, sixty tolas of silver and a hundred rupees' worth of clothes. The parents or near relations among the higher castes arrange the marriage, but among the lower the headman of the caste is often called in to settle the preliminaries,—a true lord chancellor's marriage. As soon as the parties are agreed a ceremony, called the Koola Deota, which consists in filling three lotahs with fragments of cocoanut, turmeric, the leaves of sacred trees, &c., covering them with earth and praying over them, is performed. Some time is then allowed to intervene, when a dinner is given by the relatives of the bride to the bridegroom and his party, at which the future husband is introduced to his wife; rice and fennel seed with goor and turmeric are placed on the bride's head by the bridegroom, on whose head they are at the same time placed by the bride. A temporary hut made of green boughs, or simply a chubootra, being previously constructed, the betrothed are seated on it, and on their heads is cast rice by the guests ; the bridegroom then affixes by a string a small gold button, called the mungalsuttoor, to his wife's neck, and which is only parted with in widowhood, a ceremony neglected by the Coonbees, who plead hereditary poverty as an excuse for the omission of this ceremony. Among the Brahmins follows the rite called Om. An altar of mud is raised, on which a fire for five days is kept burning, and which is fed by rice, ghee, and spices ; over this fire invocations to the gods are addressed, and their blessings on the pair are craved by the priests ; this is called Sudur. On the third day the bride is arrayed in her jewels, and the basa lingum, a painted piece of pasteboard, or toosa, an imitation of flowers, is affixed, the first to her forehead, the second is stuck in her hair, a ceremony repeated on her bridegroom. The fourth day is the day of feasting, and, when the Brahmins are satisfied, the Dhobees, Hajams, &c., are permitted to consume the fragments of the feast. On the fifth day follows the procession through the bazar, which with some more praying and feasting winds up the ceremony. Brahmins will not approach the lowest castes in their marriages, their place being taken by Tumrees, who do their best to ape their betters. Bunnyas, Yelmas, Coonbees, &c., who copy as closely as they can, or are permitted to do, the Brahmin usages in their bridal ceremonies, get Brahmins to mutter over the married pair some unintelligible muntrum, which they are pleased to consider a blessing, but which, for aught they know to the contrary, may be a vat (?) rhyme, or a curse on their presumption ; but the Tumrees and Satanies are the real priests. In the processions through the bazar different castes claim different privileges ; the canopy over the Dhernee is supported at its four corners, one of which is allowed to fall loose over the bride of the Chamar. The Dhobees walk on cloths spread out, but without a canopy. The Hajams, shepherds, Koomars and Chamars may ride on horseback ; Bunnyas, Lingayets and Dhobees are

permitted to ride on bullocks. There are various other such distinctions, and woe be to him who attempts to violate them by asserting a right which custom has denied him ! The Lingayets and their priests the Jungums, being comparatively a new sect, have some of these privileges unsettled, or rather not sufficiently recognized, and tumults at their marriages are frequent ; such disorders are fomented by the Brahmins, who abominate the Lingayets, and look on the Jungums as obnoxious interlopers.

The wives of Brahmins and the richer castes acquire sometimes reading and writing ; they are also taught, before they leave the parental roof, how to sew, cook, and make plates of the leaves of the *Butea frondosa*. Such a thing as Suttee is now never heard of ; it would appear never to have been practised to any extent in Telingana. Nikkah is a Mahomedan institution, but the Hindoos have something similar to it, which they call marmunnum, when a sort of contract is formed with a widow, who after it may live in comparative respectability with her protector. A Brahmin may keep a woman of an inferior caste, with some little disgrace but with no loss of caste, unless he descends very low indeed, and takes up with a Chamarnee. The child of a Brahmin by a woman of a respectable caste is called Vidhoor ; he is not permitted, under the penalty of forfeiture of caste, to keep the wife or daughter of a Satani. No Bunnya without degradation can keep a concubine.

Marriages are supposed to be consummated as soon as the girl has attained the age of puberty, but if she be of a delicate constitution the fact of her having reached that period is carefully concealed by her parents from the bridegroom's relatives, who would be in honour bound to consider such conduct offensive and insulting. Much has been said of the extreme youth at which Indian women become mothers, and rare examples have been produced to prove the assertion, but the truth is that the average difference of age at which girls become marriageable in Europe and in India does not extend to more than eighteen months. A few months after conception the wife quits her parents' house, and goes to live in her husband's, till the period of parturition draws nigh, when she again returns to the paternal roof. For three days after the birth of the infant no food is given to the mother, but she then receives some rice. From its birth the child is daily dosed with castor oil, a medicine which is never given to adults by native practitioners. On the sixth day it is bathed in an infusion of neem leaves. On the tenth day the midwife takes her leave, when a dinner is given to celebrate the cradling of the infant. On the twelfth day the mother is permitted to go about. In delivering the women, much meddling midwifery is practised, often leading to results the most fatal to parent and child ; in what are popularly called cross births the lives of both are sacrificed by the barbarous and reckless practice of the ignorant midwives ; as soon as the child is brought into the world the head is squeezed to give it a proper shape, and a tight bandage is wound round its abdomen.

Funerals.—Funerals are attended with little expense ; incremation costs little, the clothes of the deceased, the wood, and ghee, being all that are expended ; the price of these may be covered by three or four rupees ; the richer classes are burnt with sandalwood and spices, in which case a greater outlay is incurred. The children of Brahmins who have not been invested with the sacerdotal thread, which they never are till they have attained the age of five years, are buried. All Lingayets and Jungums are interred with the peculiar ceremonies of their caste ; Sunnyassi Brahmins, Satanies and religious mendicants generally are buried, as are many of the lowest castes.

Religion.—Some account was given in my former report of the prevalent religious observances. The worship of the Saktis is very common, the Sunkerachary Brahmins condescending to act as priests at the more celebrated, or, in other words, the better-paying temples ; but with the exception of swinging with the hook before the deities, which is very frequent throughout Telinganah, there are none of those atrocious and abominable usages of worship that are practised by the left-hand castes of Mysore and other parts of India. This may be

owing to the long establishment of the Mahomedan Government, which, bad as it often is, proscribes such overt and shameless abominations. There is much reason for believing that, under the form and with the attributes of a capricious and cruel female, the evil principle was propitiated in these parts long before the introduction of the Brahminical faith, and that it existed unheeded during the struggles of the Brahmins with the Boodhists and Jains. It was in all probability to conciliate the lower classes that the Brahmins strove to accommodate their religion as far as they could to the superstition in vogue among them, a practice pursued by the Jesuits, who in many of their ways resemble the Brahmins. The names of Yellumma, Pedumma, Pochumma, Mysumma, Saktis with different influence, are in the mouth of every low-caste inhabitant, nor are their names held in much less awe and respect by the middle castes. There is no village without a shrine to some of these deities, rude and mean it is true, but quite enough to show how diffused is the reverence paid to them. The worship of Siva has declined, as is testified by the temples raised to the ling—and some of them are costly and even tasteful buildings—being often found abandoned to neglect and ruin. The incarnation in which Vishnu is chiefly worshipped is that of Gopal Swamy or Krishna. Ramanuj priests serve at his altars. There is a celebrated temple to Rama and his wife Sita on a hill near Bhudrachellum, in the Palooncha territory, where in the hot weather there is a great fair to which people from all parts repair, combining traffic with the observance of religion. Two sons of Siva, or incarnations of that divinity, obtain a certain degree of worship—Veerabudra, who is a great favourite with the goldsmiths, a monstrous being with six heads and twelve arms, and Coomarswamy, another being equally hideous. Gunesa is invoked by all, but the name of Indra is known only to the more learned, and his protecting power is sought for by them alone. In the number of his votaries and the universality of his worship the monkey god, Hannooman, outstrips all the other divinities. The sprawling shapeless figure rudely carved in granite, and painted red, with faded wreaths of flowers at his feet, and ghee stains on his body, is the object which everywhere presents itself, at the gate or precincts of the native villages, canopied oftentimes by a stately tree of the Indian fig, with the more hideous and deformed Gunesa to keep him company. There is a convent of Sunnyassees near Elgundel, but such religious houses are not numerous. Previous to their becoming Sunnyassees the catechumens are known by the name of Brahmacharyahs; while in this state of probation, they are not permitted to shave their heads or beards; they spend their time in acquiring a knowledge of the Vedas, and if by inclination they are averse to a life of asceticism and poverty, or if their talents prove mean, they are permitted to secularize themselves, which is best and most effectually done by marriage. Dhungurs and some of the lower castes bring a daughter of a tender age as an offering to their favourite divinity; these as they grow up are called Moorlees, and become concubines to the Brahmin monks, or downright prostitutes; but this vile custom is less common in Telinganah than in the Mahratta country.

The belief in witchcraft or jadoo, as it is called, is universal; but, besides this, charms, spells, and amulets are believed to be of most potent efficacy to invite the gifts of fortune or scare away its frowns. When words of power are spoken it is said to be muntrum; when figures are written or engraved they are called yuntrums, and when formed by sand, chalk, or fullers' earth they are said to be tuntrums: a very notable example of the last may be noticed before the doors of the villagers' houses in a morning, where the women may be seen preparing this cabalistic sign, the Coonbee never daring to use the Brahmin's figure, nor the low-caste man the Coonbee's. Those who practise jadoo, and some do so openly and without shame, are knaves of the worst description; pandering as they do to the vilest passions of the depraved, and using the grossest superstition for their means, they richly merit punishment; but, as was the case in Europe two centuries ago, there are many hapless creatures who from peculiarity of manner or appearance come under the suspicion of jadoo, on whom a fearful vengeance is sometimes wreaked. On my visit to Mahdapore, a town on the Godavery in the Rangheer

Circar last year I heard of a case of this kind. An unhappy Hajam who had taken to the practice of medicine, and was rather unsuccessful in his calling, fell under suspicion of being a wizard, and was hunted from his home; after some time he ventured to return, but was betrayed into the hands of his enemies by his wife; he was summarily tried, and condemned to death, the Zemindar of the place openly countenancing the proceeding; he was sentenced to be hanged, and hanged he was, but not till the blacksmith of the place had drawn—or rather punched—out his teeth, and the Chamar had filled his mouth with the fetid lees of the tan pit.

Amusements.—Chess is played after the Indian method by Brahmins and others, who often become proficient at this game. A game called pucheese, played with cowries and a spotted rug, bearing some resemblance to backgammon, inasmuch as it combines chance with skill, is a great favourite. A game something like draught, called by the Hindoos pulijoosum, and by the Mahomedans mogulpatan, is much played by the lower castes. Then there are cards, the dushantur of the Hindoos, and the chungarance of the Mahomedans, and a game called the vycoontapalee, which is somewhat similar to the “royal game of goose.” There is much gambling among the lower castes, especially among bearers, who often, without troubling themselves with such tedious ways of acquiring each other’s property as gaming presents, take to the more compendious method of heads and tails, casting up for this purpose cowries or rupees. Wrestling is not common among the Telinghees, but fencing with blunt swords is a favourite pastime. The small blue hawk of the country is trained to strike the smaller birds, then there are fighting rams and cocks and quails; pigeons and nightingales are likewise taught to fight for the amusement of their owners. There are also the usual tumblers and thimble-riggers, and courtizans whose songs, little as they please our Western taste, are listened to with admiration and ecstasy by the Indian.

Administration of Revenue.

The ordinary divisions of a country for revenue and civil purposes generally are circars, pergunnas, and talooks, but these are by no means universal. In the Rangheer Circar pergunnas are unknown, the country being there divided into tuppahs. In the Maiduck Circar and western parts of Elgundel we meet with turruffs and puttees, as subdivisions of talooks; and in some parts of Warungul with summets, of much the same import as turruffs. A division is also found there called moottah, arbitrarily made by the Zemindars for their convenience, but not acknowledged by Government; another unacknowledged arrangement which also temporarily divides a district is the Girdmahue, where on a Government kowl of nine years Zemindars exchange villages every second or third year.

The process by which revenue is collected in the Nizam’s country may be stated as follows:—

An individual of some consideration, and who is at least presumed to be wealthy, goes to the Minister and offers his services as a Talookdar; if they are accepted he is required to pay into the Government Treasury a certain fixed sum, to be collected from the districts assigned to him, with a deduction of two annas on each rupee for the payment of his subordinates, and the defrayal of all expenses strictly civil. He then receives his sunnud, or authority for holding the districts allotted him, under the seal of the Minister, presents his nuzzer, often a good round sum, and makes his salaam. And here in a great majority of cases the Talookdar’s care and superintendence of his districts are bounded by the one idea of making them as profitable as he can; if his instalments are paid into the Treasury with tolerable regularity no more questions are asked, and he is permitted to remain at Hyderabad sunk in sloth, from which he is roused solely by sensuality and debauchery of the grossest description. Meanwhile, however, he has delegated his authority to a Naib, who occasionally possesses some knowledge of revenue matters, and who is bound to collect two or three lacs of rupees annually, on a monthly stipend of two hundred. This functionary again appoints Chotah Naibs, or Tahsildars as they are called in the Company’s country, Peshears and other subordinates, the whole establishment of the former Talookdar being swept away.

With his array he proceeds to his province with the power of a satrap and the pay of an ensign ; the persons there with whom in performance of his duty he comes in contact are the Zemindars, in some respects congenial spirits, and it often happens that the face of a ryot is not seen in his durbar, nor the complaint of a poor man heard during the whole period of his stay among them. If the Naib is a man of intelligence and good sense he courts the Zemindars, attends to their complaints,—and these are chiefly directed against the injustice and exactions, whether true or false, of his predecessor,—and redresses their grievances ; if a good understanding exists between the Government Office and the Zemindar, the remonstrances of the ryots never reach beyond the boundaries of his village, and all is supposed to go on well at Hyderabad, but in another case the ears of Government are assailed by complaints which they are compelled to listen to. If the Naib, through ignorance or avarice, break cowl, as it is called, with the Zemindars, and threaten them with imprisonment and irons in case of refusal or resistance, threats which in time he puts in execution, the whole country is in an uproar, Zemindar after Zemindar quits his villages and repairs to Hyderabad, where, if he gets no redress at the hands of the Talookdar, he goes at once to the Minister with his wrongs, and there obtains redress if he is in a condition to give a good bribe ; if he comes empty-handed his grievances are declared to be without foundation, and he is recommended to return as speedily as he can, to make his peace with the Naib, lest worse should befall him ; such are the relations the Naib and Zemindars bear to each other, to the Talookdar and Government. The Surbastu cowl, as it is called, on which tenure Zemindars farm the revenue, is more or less comprehensive, and of greater or less duration according to circumstances. In the Elgundel Circar not only is the land revenue farmed to the Dessae or Surdeshmook as he is called, but the Sahyer and every other branch. This has arisen from the trouble the Government had, some sixty years ago, with a rebellious Zemindar of the name of Cona Reddy, who, taking advantage of the unhealthiness and natural strength of the country, set the authorities at defiance ; he was at last put down, but his successors benefited by his resistance and obtained the collection of the entire revenue ; but Zemindars are often excluded from collecting the Sahyer, that branch of revenue being left to the Talookdar, who appoints an officer for the express purpose of collecting it. The Ijaru cowl differs in no respect from the Surbastu, save that in this case the farmer of the revenue is a Patell ; an Ijaru cowl, it is true, may be granted to any individual who may wish to repopulate a deserted village by repairing a ruined tank, but, generally speaking, there is no other real difference. Such independent Patells exist about Maiduck, and this kind of lease is common there ; elsewhere Patells enjoying the full rights and immunities of their office are seldom met with. There are, it is true, persons who call themselves so in most villages, but they are merely head Coonbees, with little authority, save in caste disputes, and with consequence only in as far as it is conceded by their brethren, who accord to them precedence at feasts and processions. At Maiduck, on the other hand, the Patell is a real functionary, settling direct with Government, and in the enjoyment of considerable emoluments in virtue of his office—four beegas per cent. of beegas in the poonass, as many in the rubbee, four per cent. of the rice rain crop, and two per cent. of the rice cultivated in dry weather.

These two leases, Surbastu and Ijaru, are granted commonly for a term of nine years ; but this is by no means constant when the village falls into the hands of the Government agent, consequent on the Zemindars or Patells failing to make good their engagements, or to accede to new terms on the expiration of a lease ; the revenue of such a village is collected by the Government authority, and paid direct into the treasury, with the deduction, however, of the Zemindar's acknowledged dues. Setting up zemindaries to auction is never practised in the Nizam's country, although the right of Government to resume lands and confiscate the claims of refractory or bankrupt Zemindars is insisted on, and sometimes, though rarely, is put in execution ; the truth is that the local authorities are too weak to resort to such an extreme measure. The delinquent, however guilty, commands the

sympathy of all his brother-Zemindars, who regard him as a martyr and make common cause with him, in so much that in the case of his being ejected they will furnish him with means of getting back his rights, or setting the local authorities at defiance. A bribe to the Minister at Hyderabad or some of his underlings is the shortest and most effectual means to this end, but other measures less direct and more unscrupulous are also employed to effect it. Two examples which were reported to me will illustrate this. A few years ago the Zemindar in the immediate vicinity of Hunnumconda, the kusba of the Warungul Circar, had become deeply indebted to Government, and had evinced a turbulent and rebellious spirit; certain of his villages by way of punishment were taken from him, and given to a respectable Coonbee of the name of Rugonah, who stood deservedly high in the estimation of the Government Officer. This unfortunate man had scarcely been a year in possession when he was found inhumanly murdered in his own house. His body was mutilated, with his nose and ears cut off and carried away, it was thought as trophies. The actual murderers were discovered and hanged; they were low-caste men, who could have had no personal animosity towards their victim, but there was not a Zemindar in the Circar who was not by the general voice suspected to have been privy to the crime. His fate excited universal sympathy among the ryots, by whom he was much beloved and respected, and who still speak of events as occurring so many years before or after the slaughter of Rugonah.

In the pergunna of Anantaghirri, in the Kummum Circar, where it borders on the Masulipatam collectorate, some sixteen or eighteen years ago there was a zemindar, a Yelmah Deshmookh, who on openly setting the Government at defiance was stripped of his possessions, which were given to a relation of his own; this relation he caused to be murdered, and after leading a lawless life for some years, during which time he made predatory incursions into the Company's territory, and beat off a party of the Contingent who were sent in pursuit of him, this rebel, robber and murderer by means of a bribe to Chundoo Lall made his peace with the Government at Hyderabad, received back all his possessions and rights, and died a few years ago in full enjoyment of them. After such examples as these, it is not to be wondered at that the resumption of lands by the Government should be rare, and that such fatal gifts should be little sought for or coveted, trouble and perplexity with loss of revenue being the bitter fruits Government gather, while almost certain destruction awaits the intruder.

There is yet another functionary with whom the Government Officer in collecting the revenue comes in contact, called Talookdar—not of course to be confounded with the great man, who remains at Hyderabad, of the same designation. The position and duties of these Talookdars are not very well defined; they are met with chiefly in the Kummummett Circar, and were probably placed in the room of refractory Zemindars removed for their misdeeds at some period when the Government was stronger than it now is. The Zemindars still claim their rights on the Talookdar's villages, but cannot displace them without the concurrence of Government, or levy puttees on their ryots without their consent; the Talookdars, on the other hand, are not allowed to grant written agreements as to leases, &c., of any kind without the permission of the Naib, or one of his subordinates, but they can compel their villagers to furnish them with wood and beegarries in their journeys. The office of Dorwa was explained in my former report. All the better castes may be Talookdars and Dorwas—Brahmins, Yelmahs, Kummawars, &c. Some villages in Kummum have a Cutwall, a Mahomedan, at their head, whose office is similar to the Havildar's. He is removeable at pleasure. The village system, the allowances to the Baruh Balowteh, and the different cowls on which land is rented to the ryots have been mentioned in my first report. There is a tenure, however, which I have neglected to mention, called Paypal, in which the cultivator, in consideration of the seed lent him and the use of bullocks for his plough, gives up one-half of the share of the produce left him by Government to his creditor, but this tenure is in use only among the most indigent, and chiefly among emigrants from other circars who are reduced to great poverty. Some time previous to the fall of the rains in June the Coonbees are

solicited by the Havildar or Patell to come forward and make their arrangements for the ensuing season, that is for the poonass, abee, and rubbee crops; the agreements for the tubeec crop of rice and for another crop called maghee, which is confined to a few pulses sown after the rice is reaped, are made at the Dusserah. There is much chaffering and coaxing on the part of the Government officials, and many just recriminations and complaints on the part of the ryots, with endless lying and falsehood on both sides. The former talk of a decreasing revenue, and of what the village used to yield. The latter urge they are ruined men, they have been cheated by the Havildar, defrauded by the Putwarree. The village carpenter will not make them ploughs, they have no money to purchase seed or instruments. The Panchangum (the almanack) holds out no good prospects, &c. Bargains, however, are at last struck and the pawn suparree handed round; the ryot's next care is to get an advance from the Bunnya, and if he is known to be an industrious man he effects a loan at two per cent. a month, getting the Putwarree to be his security; but if he is less known or more easily duped he obtains a loan on terms much less favourable from the Shylock whom he sues—not only is the usual interest demanded, but he is required to give the produce that remains on his hands after harvest to the Bunnya at a price lower than the bazar rate.

Advances are made to the Coonbees by the Government but cautiously, and on terms somewhat higher than are exacted by the Bunnya. When the Coonbee has lost his ploughing cattle an advance of ten rupees is given for the purchase of a pair of buffaloes, and double that sum for bullocks. This is called Tuccavee, and includes advance for agricultural instruments, &c. If he has no food, or the means of procuring it for himself and his family, Poatgee, an advance of grain is given him, seed too is advanced, and for all such money or food interest is charged at the rate of twenty-five per cent., which is payable together with the principal as soon as his crop is reaped. If four maunds of grain are given, five are expected in return; if Rs. 4, Rs. 4½ are demanded and so on. Lagore is another kind of advance of two or three rupees for the hire of labourers, to assist him in his work, after the rice has been in the ground about a month and has appeared above water. A portion of the rent called Tuccuddumee is demanded from the ryot, who has recourse to the moneylender for assistance; but this instalment in case of the dry grains is asked as soon as the seed is in the ground; when the grain is ripe a second instalment is paid, called Kurbast, and before it is allowed to be carted to the corn yard, the third and last instalment, called Domballah, has to be paid. In levying these instalments a wide door is opened to oppression and exaction by the Government, it is the work of appraisers called Unchemwallahs. The legitimate appraisers should be a Government servant, the village Putwarree, and an intelligent ryot, but they are often hired servants of the Naib and strangers to the villagers, in which case it is not to be expected that much justice should be meted out to the cultivators; such appraisers are content with very small wages, four annas a day, expecting higher wages and employment if they satisfy their principal. There is much guesswork and many wilful mistakes made by these publicans, and any one who makes a progress through the Nizam's dominions too often sees protests against their proceedings in fields of ripe corn remaining uncut, and hastening to destruction by the refusal of the ryots to cut their crops under the unjust conditions proposed to them.

The following table of average seed and produce per beega they have to direct them if they choose, but the beega is so seldom well defined that it is frequently of little use:—

<i>Seed.</i>	<i>Produce.</i>	<i>Seed.</i>	<i>Produce.</i>
Rice 2 Maunds.....	2 Kunderes.	White Jowarree 4 Pylees....	15 Maunds to a Kunder.
Samah 2 Pylees	10 Maunds.	Chenna 5 Pylees.....	6 Maunds.
Moongh 2½ Pylees	5 Maunds.	Wheat 8 Pylees	10 Maunds.
Bajree 2 Pylees.....	8 to 12 Maunds.	Oat 3 Pylees	6 Maunds.
Tillee (Sesamum) 1 Pylee...	5 Maunds.	Black Moongh 1½ Pylees...	5 Maunds.
Kungoonce 1½ Pylees.....	6 Maunds.	Castor Oil 6 Pylees.....	8 Maunds.
Yellow Jowarree 4 Pylees....	12 Maunds to a Kunder.	Indian Corn 8 Pylees.....	15 Maunds to 1 Kunder.
Toor 4 Pylees	8 to 10 Maunds.	Kadrow 2 Pylees	15 Maunds.
Koolthee 5 Pylees	8 Maunds.		

The mode of settlement with the ryot differs in ~~the~~ respect in Amancee villages, the duty of collecting the revenues of which is vested in the Government Agent, from that adopted in villages under the Zemindar. They may perhaps be less subjected to the imposition of puttees, but then again, from ignorance or perverseness on the part of the Government Officer, they may be more rackrented than those let on the Surbastu tenure.

The other items of revenue are as follows :—

I. The Moturpha or house rents from villages is collected every three months. Besides the ground allotted to these rentpayers for the sites of their houses, a small portion of garden ground, called Peereer, is granted them rent free, on which they grow cucumbers and other vegetables ; if the houses of the village are much crowded together, the Peereer is assigned to them in the precincts.

II. The Sahyer is collected by a separate functionary, called the Sahyer Naib under the Suddur Naib ; he has got his subordinates at the different chokees or stations, who are constantly on the alert, and who cause much delay and annoyance of every kind to those engaged in traffic ; there are no less than twenty-eight of these chokees in the Nelgoondah Circar alone ; at each there is a Choikedar and a Mootsuddee, who are paid by a small percentage on the sums they collect.

III. Kullalee.—The tax on alcoholic liquors, and on shops where these are sold. The kullalee is sometimes farmed out to the head kullal, but at others collected by the Putwarree from the individual kullals.

IV. Sewaee or Sevay, as the Telinghees mispronounce it.—Under this head come fines of every description with the exception of the fines of a large amount paid directly to Government by Zemindars under the name of nuzzurana and shookerana, the first in the case of a minor for wardship, the second on simple succession, and which are usually provided for by puttees on the ryots, taxes on tamarind trees, mangoes and fruit trees in general, also acacia trees, the pods of which are given by the Dhungurs to their sheep. Phoolery, or the grazing right, is also included under this head, and also a number of other small taxes, some of which shall be enumerated, as they illustrate local usages and show considerable ingenuity on the part of the tax-gatherers.

Shadee Punjee.—A tax on marriages, or rather on marriage processions.

Janwar Furocht.—The sale of waif and stray animals, which is credited to Government.

Bytul Mal.—When property is left without heirs, there is much injustice and rascality on the part of the Government officials with respect to this item, property is sometimes seized on this account and very little inquiry made for heirs.

Duffun.—A tax on funerals.

Khak Shoee.—A tax on goldsifters ; these are a set of men who go about the country and wash all kinds of dust where goldsmiths' shops have been or where they conjecture them to have been.

Boot Purustee.—A fine levied on those who swing with the hook in their backs.

Bundee Suzann.—A fine on pilferers, trespassers and other petty criminals.

Rozmurru.—A fine paid by servants who engage themselves for a certain period.

Muntra Sawnee pun.—A tax paid by midwives.

Qussaae Mal.—A tax on the vendors of meat.

Neelee Mal.—A tax on the manufacture of indigo.

Taylee Mal—Pan Mal—Tumbako Mal.—Taxes on retailers of oil, pawn, and tobacco.

Beldar and Hulwace Mal.—Taxes on beldars and confectioners.

Koola Charyee.—Fines for caste offences.

Bulta Bazaree.—A fine paid by bazar thieves.

Mohradee Tohfeyut.—A tax on copper coin.

Gondul and Mundul.—Taxes on musical instruments, paid by musicians.

Tij Bazaree.—A tax on hucksters, not regular shopkeepers.

Ware Karee.—A tax on the daily collection of interest.

Mutchee Gooltee.—A tax on fishermen for the privilege of fishing.

There is a tax on Bunnyahs—which, however, is not classed with the Sewaee taxes—which at first sight would appear to be singularly arbitrary and oppressive. Bunnyas are compelled to take a certain quantity of the grain which comes into the hands of Government for rent at a price two or three rupees per kundee higher than the bazar rate. But the profits of Bunnyas are so enormous that they can well afford it, and there would appear to be no other means of reaching them.

Enams.—Enam grounds to temples and mosques pay one-fourth of their rent to Government, and this tax is included in the Sewaee jumma.

The late Minister, Chundoo Lall, was most liberal in his gifts to all holy men—Mussalmen faquirs, Hindoo gooroos, and religious beggars of all description were alike the objects of his bounty. Had a Franciscan or Dominican friar appealed to his bounty, Christian as he was, he would have been sent away rejoicing; but the language of the first James of Scotland, who said of one of his predecessors that he proved a sore saint to the crown, was most applicable to him, and perhaps, faulty as his administration was, this lavish misappropriation of the Government revenue committed to his charge was its deepest stain: village on village, under the name of Agrari, he gave over to Brahmins, who on the payment of a small quit rent, or perhaps no rent at all, enjoyed the whole profits. Some of the most populous and richest villages were given away in this manner, to the great loss of the State finances.

Aimulwarrah, a large village in the Elgundel Circar, is an example of this. Muntini, another large village in the Ramgheer Circar, is occupied chiefly by Brahmins, and the tenure is somewhat different from the Agrari villages in general; the lands are let and the rents collected by Government Officers, but the rents are at a much lower rate than those exacted from other villages.

These Agrari villages are sometimes misnamed Brahmin jagheers, both by Mahomedans and Hindoos. Jaghirs—Jaghir lands—are given avowedly for the support of troops, or for personal service, but they are virtually Enam lands. The Jaghirdar remains usually in the city of Hyderabad, the care of collecting the rents being left to a deputy; these lands are constantly being resumed by Government, for which there are always sufficient grounds in the non-fulfilment on the part of the military Jaghirdar of the conditions of the Government, a few ragged Sebundeas being all the troops he has to show. The Zemindars claim roosums on these jaghir lands, and the Cazeer is supposed to administer justice to the ryots, but when the Jaghirdar is strong enough the claims are evaded, and the judicial interference dispensed with.

Bel Muktah.—There is yet another tenure called the Bel Muktah, when an individual has a village granted to him for a certain number of years, at a low quit rent; this is a favourite tenure, and some of the villages let on it are in a very flourishing condition, for reasons that are sufficiently obvious. Some Deshpundyahs are willing to relinquish their two and a half percentage on the revenue in lieu of a village on the Bel Muktah cowl; among those who have done this is a Mussalman Deshpundyah, who holds the village of Condapillay in the Ramgheer Circar, whose Brahmin ancestor was converted to Mahomedanism during Aurungzebe's rage for proselytizing; more may have been converted, but he remains the only one who has adhered to the new faith.

Town duties are collected in Kusbash, and the amount divided among the neighbouring Zemindars: they are not a very productive tax.

Administration of Justice and Police.

There is probably no department in the Nizam's State where there are such deviations from all established notions of equity and good government as in the administration of justice, and yet it may be doubted if on the whole the subjects of the Nizam look on the perversion as a very great grievance, for it has one recommendation—it is speedy and summary. There is a Cazeer in every Circar for criminal cases, frequently a Moolla for civil cases, and there is another officer called a Neriki, whose duties are very similar to those of the Roman *Ædile*, consisting as they do in seeing that weights and measures are correct, striking averages in the prices of grains, and looking after mosques and public buildings.

The first and last of these functionaries are Munsudars, paid by the State—the one receiving a monthly salary of seventy rupees a month, the usufruct of one or more villages, with fines on marriages, right and left handed, of Mahomedans. The other receives no salary, but has a village or two.

The Moolla, where he exists, has a monthly stipend of some seventy rupees, but is rather an assessor of the Cazee's than an independent officer. It might be supposed that men in such receipts, and two of them hereditary officers, would exercise their functions with some degree of independence; but in truth it is not so: they are the veriest thralls of the Naib or his principal, with as little real independence as a Sebundee on three rupees a month; and it could not well be otherwise, as no cause can be brought before the Cazee without the Naib's consent, and no decree put in execution unless it suits him to do so. Nay, more—the Naib may, without the least apprehension of the consequences, give judgment in every criminal and civil case. As to the Neriki, he is a mere cypher. A committee of Bunnyas in the interest of the Naib settle the average prices of grain. There are few mosques to look after, and these he neglects; and as to false weights and measures nothing rejoices a Naib more than the detection of a Bunnya or other trader who practises such frauds. A good round sum in the shape of a bribe, or fine which more frequently finds its way into his pocket than into the coffers of the State, is sure to reward him for his judgment. The Neriki is often found a stupid, sensual, besotted Mahomedan lout. The Cazee, however, affects some knowledge of the Mahomedan law, and of the works of the commentators, and his head is muddled with distinctions without differences, ingenious sophistry, and subtle casuistry, which he finds written by these great Law-Doctors, all intended to make law easy, but which do little else than bewilder him. If the cause be conducted before the Cazee or Moolla by a Vakeel, a fee is paid to the pleader, who is usually a Brahmin, by the successful party, but most frequently the litigants are their own lawyers. The Cazee's establishment consists of a Persian Moonshee, and a Telinghee Mootsuddee, with four peons, all paid by Government. By the Mahomedan law wilful murder, of which there are several varieties, is punished by death, but punishments of that severe nature are very rarely put in execution. The Cazee may condemn to death, but before it can be inflicted there must be a reference to Hyderabad; if the convict can bribe the authorities he gets off with imprisonment for a longer or shorter period, and if he be a very poor man and any kind of excuse can be devised for the criminal act the sentence is commuted to imprisonment in irons for life. Chundoo Lall was particularly averse to the infliction of this extreme penalty, and during his ministry the most atrocious murderers escaped with fine and imprisonment. Hanging is the usual mode of execution; highway robbery with violence is expiated by imprisonment in irons for eight or ten years, and thefts with imprisonment for a shorter period. Coining is seldom practised, but passing bad rupees, coined in the city of Hyderabad, is sometimes met with; the punishment is also imprisonment. The Mahomedan punishment for rape is sometimes stoning the ravisher to death, but this crime is often compromised by a fine. Wilful fire-raising, child-stealing and forgery are punished by incarceration; whipping by a leather strap called the Dourra, of which there are two sorts, is awarded by the Naib for such offences as giving abuse, raising disturbances in the bazar, &c. But the infliction of no punishment is so dear to the heart of the Naib as fining—in truth there are very few offences that may not be expiated by a good fine. Bunnyas are fined for secreting their grain in years of scarcity, in order to enhance its price; this is a very common offence, and when the dry grains are hid may be done without much risk of loss; it is one, too, well worthy of punishment in a country where the communication is attended with great expense and difficulty, which prevent the price of such a necessary of life being regulated by a free competition. Fines are imposed for many petty offences and are appropriated by an unprincipled Naib to his own use. A Naib of this character is continually on the look-out for paying offenders, and he has meet instruments of espionage in his peons and Sebundeas, who ferret out such petty delinquents, and bring many false accusations when they think they can turn to their master's

profit. All prisoners are allowed a seer of grain a day and a pice for salt and tobacco; they work for the Naib during the day and are locked up at night. All disputes that in any way, however remotely, affect the Government are determined by the Naib or his subordinates, but when they merely involve the rights of individuals an appeal to a headman, or to a Punchayet, is allowed. Each class has a headman of their own. The Bunnyas, Belgewars and other shopkeepers have a chief whom they call Manar; the Coonbees have their Pedda Capowar to whom they give the title of Patell; the Dhungurs their Pedda Gwallaro, and so on down to the lowest castes. To this office are attached no acknowledged or regular fees, but a certain abatement of rent is granted to those who hold it; it is hereditary, but if the official be notoriously corrupt or impenetrably dull he is quietly shelved and another referee is selected, certain immunities, however, remaining to the hereditary possessor. Many disputes are determined by these without further ado, but an appeal from this decision to a Punchayet is permitted. Each party naming two members, the surpunch ought properly to be chosen by the members; but if the subject-matter of dispute be of importance Government interferes and appoints the President. In mere caste and family differences the legitimate course is adhered to. The decision of a Punchayet is held to be final, and a Razeenama is granted if required. Boundary disputes involving the right of Phoolery or grazing, claims on toddy trees, &c., are settled by Government, but petty bickerings about village boundaries, such as Dandie Dinmont had with his neighbours, are settled by the villagers themselves. The Dhers on both sides are consulted and appealed to, their claim to carcasses of animals which have died from disease being supposed to constitute them good evidence.

If the Dhers cannot determine the matter, a sacrifice is made to a Sakti, some live animal from a buffalo to a fowl being offered. After this the party have a drinking bout, and on the following morning the head Dher fills a basket with images of the avenging deities, well sprinkled with turmeric and hooly powder; with this basket on his head he marches to the boundary, where he deposits it, invoking the curses of the gods on those who transgress boundaries.

The Police may be classed under two heads, the Government and the local; the first is nominally under the Cutwal of the kusba, who receives a monthly pay of Rs. 30 or Rs. 40, but is virtually under the Naib. The peons get Rs. 3 a month—a rabble rout; they are indifferently armed and clad, and not famed for their efficiency.

The local Police is under the Zemindars, and is composed of men born in slavery called Kitnutgars, and of another class, called Khussahs, but who are not bondmen. They are both clothed, fed, and supplied with such indifferent arms as they have at the expense of the Zemindar. They receive no fixed pay, but quartered as they often are on the villagers they come in for certain perquisites of grain and clothing, which serve in lieu of it. There are, besides, the village watchmen, called Talarees, who exercise the functions of policemen within the limits of the village. For all robberies and thefts occurring in his domain the Zemindar is held responsible. He is required to pursue the thieves and bring them to the Naib for committal, and in case of his being unable to recover the stolen property he is obliged to reimburse the plundered party, which he does by levying a puttee on the village in the neighbourhood of which the crime was perpetrated.

There is abundant evidence to show that the Police of the country was at one time in the hands of Munnewars, and of a chief called Surmunnewar, the former receiving the usufruct of one or more villages in a pergunna for Police purposes, the latter one per cent. on the revenue of several Circars. In the Havalee pergunna of Maiduck there are still Munnewars, but their function is limited now to making good losses, and there is a Surmunnewar in the wild districts of the Warungul Circar called the Boputtec, who claims Munnewar rights over it and several of the neighbouring Circars. These rights are said to have been originally one per cent. on the revenue, but both his occupation and his emoluments are gone. Until lately—and there is no saying how soon he may resume his old habits—he was a thief and an outlaw, hiding himself among the Koewars, and descending

to the plains, only for predatory purposes. In the hands of such a Vidocq it would not be very safe to intrust the guardianship of property. The Mahomedans would appear to have been at one time inclined to imitate this old Hindu system of Police, and to have appointed officers called Mookassadars with the same rights and duties as Munnewars ; few of these now exist, but there is a Mokassadar in the exercise of Police duties on the Masulipatam and Hyderabad road.

Manufactures and Commerce.

Coarse cotton cloth for women's sarees and breastcloths, and for men's clothing, is manufactured at every large village throughout the country. Finer cotton cloths, with coloured or embroidered borders, are prepared at the different kusbahs, or in their immediate neighbourhood ; they are dyed red with chelwar or madder, blue with coarse indigo, yellow with turmeric, green with turmeric and indigo, and a dirty yellow with the bark of the mango tree : their being so dyed increases their cost by 8 annas to a rupee ; coarse chintzes are stamped at Mulwarra and Kummum, and a few other large towns ; two colours are only used the black with sulphate of iron to bring out the colour, and red from chelwar and madder with alum as a mordant. Sarees, chiefly children's roomals, &c., are thus stamped. Cotton rosaces are sewed at Aimulwarrah, sarees are embroidered by tailors throughout the country.

Raw silk is imported from Madras and manufactured into sarees and women's breastcloths at Mutwarra, Warungul, Maytpilly and Aimulwarrah, in Elgundel, at Maiduck and other kusbahs. This manufacture is entirely for home use, and no great skill or taste is displayed by the weavers ; the silk pieces are of a quality inferior to those sold at the same price in the Hyderabad bazar, and were it not for the transit duties the manufacture would become extinct ; the silk cloths are dyed red with the lac dye, and yellow with turmeric. no other dyes are used ; tusser or jungle silk, the produce of a species of *Saturnia*, is made into sarees, punchees, and scarfs, at several towns of the Circar of Warungul. But the chief seat of the tusser manufacture is the town of Mahdapore, on the right bank of the Godavery, in the Ramgheer Circar, where the moth that yields it is carefully reared, and from whence raw tusser silk is sent to other parts to be woven into cloth. The insect in its grub state is first fed on the tender leaves of the *Careya sphaerica*, and when more grown on the leaves of the *Pentaptera tomentosa* ; much watching and attention are bestowed in rearing the animal, subject as it is to destruction from birds, insects, and squirrels. The tusser cloths produced at Mahdapore are, in durability and fineness, very inferior to the cloths of the same kind manufactured in Bengal ; they are dyed the same colour and with the same materials as the silks, of which they are about one-half the price. At Mahdapore there are seventy to eighty families employed in rearing the insect and in the manufacture of the cloth, which is prepared principally for the Hyderabad market. The woollen and cotton carpeting of Warungul and Mulwarra was noted in my first report ; there are common cotton carpets dyed blue and red, woven at several places, chiefly for home consumption—at Mulwarra, Maiduck, Aimulwarrah, &c. ; there are no other woollens manufactured with the exception of very coarse cumblees and numdahs, which are made in every village by the Coorewars and other low castes ; their cost is very low, from one rupee to eight annas each. Gunny bags are manufactured from sunn. All over Telinganah the pottery is exceedingly coarse and shapeless with little attempt at decoration ; the red gurrah and lotah when the clay contains much iron, and dark-coloured when the proportion is less, are met with from the Manjera to the eastern frontier, and from the Kistna to the Godavery. Bricks and tiles are formed of the same material, the former being used by the masons for the foundations of houses and the repairs of the walls of forts, but the walls of the houses are most commonly of clay, the better-conditioned of the inhabitants having them tiled, while the poorer classes content themselves with roofs of coarse grass or palmyra leaves ; the form of the houses is usually rectangular, but in the Kummum Circar about Kullore many are round, hexagonal and octagonal. Towards the Godavery, where there is an abundance of materials and where the clay is less adhesive, the houses are of wood and bamboo with wattle and dab ; in

this locality are also to be met with wells from which water for drinking or food is procured, fenced with wood to prevent the sand falling in, much after the manner of the pot-wells already described.

Brass is formed into lotahs, kattorahs, and other vessels used by the natives for the preparation and reception of their food, at Paungul, near Nelgoondah, Devurcondah, Kummum, &c.; they are very plainly made up, without much carving or ornament of any description; glass for bangles is manufactured at Kummum, Teputy in the Nelgoondah Circar, at Devurcondah and at several other places: there are only two kinds produced, green and black; red and blue glass bangles are imported from the Nagpore country. Children's toys are made up at Hannumcondah and Kummum by the Nuquash (painters) who also paint pictures of the gods for sale, and make painted fans of the leaves of the palmyra tree.

Leather for shoes is dyed red with lac at Maiduck; coarse wrapping paper is prepared from old gunny bags which are made from sunn, at all the chief towns of each Circar, and several of the larger villages; the pulp is sometimes, as at Maiduck, mixed with chopped wood to make the paper stronger. Writing paper is made and sized, but it is of a very inferior description, and is consumed entirely in the districts where it is manufactured.

Steel is made at several villages in the Circar of Elgündel, at Ibrahimputnum and Konapore in the Karootta pergunna, and at Atnacore and Chintulpet in the Velloorla talooka; it formerly was prepared at several other places, but the steel furnaces in them are now abandoned. The teepoor, as it is called, the raw material of the steel, is manufactured at Maytpilly, a village twelve miles south of the Godavery, belonging to Balmookund, from a ferruginous sand procured from gneiss by roasting, pounding and washing. The whole process of the manufacture of this steel is detailed with accuracy and minuteness by Dr. Voysey in the first volume of the Asiatic Society's Transactions, and also by Dr. Malcolmson in the Geological Society's Transactions of 1839. Both these gentlemen visited the steel furnaces at Konasamoodrum, in the adjoining district of Neermul, which supply the material from which the Damascus blades are manufactured. The steel manufactured at these villages is very inferior to the Konasamoodrum steel, and does not fetch half its price. Yet the same teepoor is used for both, and the same care is apparently bestowed in the preparation; the only difference I could detect was that the pure iron, which along with the teepoor and the bran is placed in the crucible, is in the case of the Konasamoodrum steel prepared from the yellow clay iron ore found in the laterite at Tatpilly, while at Ibrahimputnum and the other villages any iron, without reference to the ore from which it is smelted, is used. The exact chemical condition of the metal under the form of steel has as yet evaded scientific investigation, which renders it probable that the inferiority of the Ibrahimputnum steel may be attributable to this one neglect. The Mogul who rents the Konasamoodrum furnaces would seem to be of this opinion, as he holds a strict monopoly over the Tatpilly iron, in so much that I had some difficulty in procuring a specimen of the metal.

In the steel furnaces five men are employed—the principal workman, who has the care of the crucibles, which he is continually moving about the furnace by means of a long iron rake, and four bellows-men. The daily pay of the chief is two seers of rice and two annas a day, the others receive half the rice and money; if the steel comes out of the crucible at all blistered or unequal on the surface it is rejected as worthless; there are two kinds of crucibles, the large and the small, each of which contains a lump of steel of from one or two pounds in weight; the cost of the furnace varies from four to six annas for the smaller pieces, and from eight to ten annas for the larger.

The workmen complain that the Hyderabad market is now lost to them, their steel being undersold by steel from Europe, which is there preferred for the manufacture of arms.

The chief consumption is confined to the country about, where it is used for hatchets, sickles, &c.

At Lingunpilly and another village, both close to Aimulwarrah, barrels for

pistols and matchlocks are prepared. * * * * * Swords, daggers, bullam heads, are manufactured at Elgundel from the country steel. Scabbards from the wood of the *Sterculia urens* are also made up there.

The internal traffic of the country is inconsiderable ; the produce of each Circar is mostly alike, the mere necessities of life (and few of the inhabitants aspire to luxuries) being grown or manufactured in all.

The traffic with the Company's country is of greater importance.

By the treaty of 1802 between the two Governments, which is still in force, it is directed that an *ad valorem* duty of five per cent. be levied on all exports and imports at Hyderabad and Masulipatam respectively, and at these places only.

From this duty are exempted all mess supplies and Military and Commissariat stores of every description, which are allowed to pass duty-free, under a permit signed by the Collector of Customs. Under this exemption it is supposed that much fraud is perpetrated—carts filled up as store carts and in company with them, but which contain goods liable to impost, are believed frequently to pass the frontier duty free, some frivolous excuse being given to the Nizam's officers, such as that the permit has been sent to Hyderabad or that it is to follow.

There are three main roads that lead into the Hyderabad country from the east and south. The principal road enters the Nizam's country at Sher Mahomedpett near Jogiepett, where the Sahyer officers of both Governments are resident, in the Kummum Circar.

The next road crosses the Kistnah from Pougul to Warapilly in the Devarcondah Circar, and the third, called the Ellore road, which passes by Palooncha and Mahadeopore and leads to Nagpore, traverses the Kummum Circar and skirts the Godavery, till it reaches the junction of the Pranheetah with that river, and then proceeds by Sirpore to Chandah in the Nagpore territory.

The imports into the Nizam's country by these routes are Europe articles of dress and luxury, and China produce, tea, sugar-candy, chinaware and silk, raw and manufactured. Of country produce there are imports of coarse cotton cloths, scarfs called punchees, table linen, towelling, handkerchiefs, coloured and stamped native cloths, salt, cocoanuts, tobacco (the tobacco grown in this part of His Highness's dominions being in no great repute), candles, poultry, and coconut oil. The exports consist of madder, the dye of the bastard saffron, mostly from Berar, but some is grown at Maiduck ganja, opium, wheat, all the produce of Berar or Malwa ; jowarree, moong, toor, and ooreed ; sesamum ; and castor oil seeds, gold and silver thread for embroidery, mushrooms and kinkobs, chiefly from Berar, teak timber, tamarind, lac, asafetida from Cabool. Buffaloes, bullocks, sheep and goats, investments consigned to shopkeepers at Hyderabad, pay no duty on the frontier, the duty being levied at that place, in conformity with the terms of the treaty, but duties are levied on the frontier by the Sahyer officers of the different Circars on goods imported by individuals who have taken cowl from the Nizam's Government at a reduced rate, the difference going to the Talookdar. This is a fertile source of fraud and smuggling ; such importers who reside at Hyderabad have agents either at Masulipatam or at Madras or both places. The export duties are levied in the same manner. It is quite impossible to form even an approximative estimate of the value of the imports, on account of the numerous frauds practised and other causes already stated ; the exports being more under the supervision of the officers of the Nizam's Government were roughly valued a few years ago at five lacs and forty thousand rupees annually—four lacs through and from the Kummumett Circar, one lac through Nelgoonda, and forty thousand through the Palooncha district. Nothing is so vexatious or so injurious to the petty traffic of the country as the constant demand, often by unaccredited officers, of some trifling tax in money or kind—for a mango from each case, a handful of tamarind from each bundle, a sheaf of straw from each cart ; a whole line of carts is thus stopped, and much loss of time and spoiling of goods are incurred by the demands of the taxer and the complaints of the taxed. Jaghir and Enam villages are especially obnoxious in this respect.

There are many fairs held during the dry season throughout the country,

where there is traffic in grain, brass ware, coarse cottons, &c. There is in each Circar a larger gathering once a year, which attracts merchants from Masulipatan, Hyderabad, and Nagpore, as at Bhuddrachellum in Palooncha, Amulwarrah in Elgundel, at Maiduck and at Warapilly in the Devarcondah Circar; there is usually some shrine of celebrity which gives occasion to these assemblages; in addition to the goods found at the smaller fairs there are cocoanuts, dried fish, silks, &c., that are brought for sale. Bandies are the usual means of conveyance for the western and southern of these districts, but pad bullocks are more frequently employed than carts in Warungul and Kummum. The weights and measures are pretty much the same throughout, and tables of these were given in my first report, there is sometimes a difference in the number of pylees to the udda, or rather the consoo: most commonly it is four, but at Sumtamoonyum, in the Warungul Circar, it is as high as six pylees to a consoo.

The Halee Sicca rupee is the current coin, but it is impossible to exclude rupees of an inferior value from passing in the districts near Hyderabad, and the Company's rupee passes current in the eastern pergunnas of Kummennmett. There are two or three kinds of copper pice. I found at Mahdeopore old Madras copper coin passing for pice. In the foregoing pages no attempt has been made to conceal the vices and shortcomings of the Nizam's rule, which, like every other Mahomedan Government that has under its sway a population chiefly of a different creed, bore at the very moment of its institution the fruitful seeds of decay. The polity of the Mussulmans scarce bears transplantation from the desert, even when its subjects have adopted the faith of the Prophet; much less will it bear engrafting on the institutions of a foreign people of a different and hostile creed. The appropriate type is that "Pagod thing of sabre sway with front of brass and feet of clay" which the Assyrian king saw in his dream. In fact, for Mussulman conquerors there are but two courses to pursue—either to act in strict conformity with the precepts of the Koran and utterly root out and destroy the subjected infidel, or, in obedience to the better dictates of humanity and even of prudence, to spare the inhabitants of the subdued country, and overlay their institutions with as much of the Mahomedan polity as they will bear, thus defacing without absolutely destroying them. We see all this in the country now under our view. The village system, the very ground work of Hindoo society, remains, and the Hindoo Deshmookh, nominally stripped of much of his power, is transformed into the Zemindar, but with an hereditary authority and influence that can only be destroyed by his extirpation, and these are the elements that prevent the whole state of society from being dissolved. The Zemindars, with all their faults, are men of the same country and faith as the ryots, with common sympathies, and, as the wiser of them discern, with a common interest. The reckless, unprincipled Zemindar, who grinds his villagers with unjust extortions, soon finds to his cost that his domain becomes desolate, and that he is ruining himself to profit a neighbour or a rival. It is very certain that no emigration has lately to any extent taken place from the Nizam's to the Company's territory. Yet along the whole eastern frontier there is every facility for it: no river of any breadth, nor hill of any difficulty, separates the one territory from the other, and a kindred people occupy each side of the line of demarcation.

The Telinghee, too, is more migratory than most Hindoos, Telinganah being one of the few Hindoo states that ever was maritime or applied itself to foreign commerce. At the very time the Government at Hyderabad is weak and ricketty the Zemindar has halcyon days. He has power enough to collect his own dues and rents, to bribe a corrupt Government, and set an imbecile one at defiance. The rascality and villainy of this class is the perpetual theme of Talookdars and their Naibs, who hate and fear them. Yet it is very certain that this very apprehension is most salutary, and serves to avert injustice and oppression from every class.

In concluding this report an evil may be noticed which weighs far more heavily on the defenceless population than any fiscal oppression, and that is the bands of foreign mercenaries, Arabs and Rohillas, who having their head quarters at Hyderabad, issue forth like the Tondeurs and Ecorcheurs of the Middle Ages to

plunder and destroy, with murder, rape and robbery in their train. This part of Telinganah has been less subjected to the depredations of these ruffians than other parts of the Nizam's country, but it has not altogether escaped from their atrocities.

NOTE—I find I have omitted among the cultivated pulses two species of *Pisum*—the common field pea, and another kind called Lakh; both these are grown at Maiduck, and also the *Carthamus* or bastard saffron. In the table of imports alum has been omitted, and in that of exports wax.

Wages are much the same all over the country, and are according to the rates given in my first report.

APPENDIX.

SOME ACCOUNT OF BUSTAR.

Necamut Oollah Khan Patan, an inhabitant of Bhopal, who, suffering from an abscess, had stayed at Mahadeopoor, in the Circar of Ramgheer, gives the following account of the country of Bustar:—"We to the number of ten individuals, including Azad Khan and others, had gone to the country of Bustar, in search of service, by the route of Tappa Churlah, attached to the Talooka of Shush Mahul, in the Circar of Ramgheer, under the Nizam's Government. The distance between Tappa Churlah and that part of Bustar is four coss. We reached Bustar in 15 days, but do not remember the names of the villages and halting-places that intervened. At places where we halted we were only allowed one seer of rice each man, and six fowls, and in some places five fowls, among our whole party, such being the raja's order, as we were informed; but we were obliged to dispense with the poultry for want of ghee, and to content ourselves with rice only. When we reached Bustar, the Raja, Bhopal Deo, received the news of our arrival. Bappoo Raj and Buchrully, and the chief of Duntwarrah, all in the rajah's service, happened to be present at the time, to whom the raja observed, pointing to us, 'These are good Jawans, entertain them in the service.' Accordingly Bappoo Raj treated us with kindness, and fixed the Jamadar's pay at 60 rupees, the Duffadar's at 15, and the Jawans at 10 rupees. Some time after we fell ill, on which the raja ordered us to go to Bappoo Raj; and remain with him consequently we left Marunkah, where the rajah resides, and where we were in attendance, and proceeded towards our destination, reached Bustar, and thence set out for Chintalnad and Devarcoonda; when we reached a place called Neelbur, within one stage of which was Chintalnad, it being evening, we thought it advisable to light and lodge there for that night. One of our Jawans, being with his family, occupied a separate hut; while he was asleep four thieves of the tribe of Gond entered it, and in their attempt to draw off the silver bangles he had around his arm awoke him; he immediately grasped his scimitar and attempted to get up, when one of the thieves struck him on the neck with a club. The Jawan, writhing with pain, wounded his assailant thrice with his sword, and the thieves one and all fled; this accident caused such a stir and noise at the time that it instantly drew together the inhabitants of the place and of its neighbourhood, who kept guard around us during the remainder of the night. In the morning, however, they would have us to deliver them up the Jawan that wounded the thief, whom they openly called their man. We of course refused to do so, and they again raised such a disturbance in consequence that it is impossible to describe it. They then shut up the road by means of large trees, which they cut for the purpose, throwing them thickly on the ghaut, road, &c., over which we had to pass, in such a manner as to leave no trace of the road whatever. From this it became difficult to save our lives; we were obliged to leave our baggage and tattoos at the same place, and to throw ourselves in the jungle in progress of our destination; so after experiencing a thousand hardships and difficulties we reached a place called Madare, whence by Bhopalputtum, after crossing the river of Indravany, finally arrived at this place.

"The account of Bustar is this. Bustar is situated in an open plain and contains nearly one thousand small houses or huts. Near it stands a mud fort, the wall or outwork of which is in many places broken down: it is surrounded by a ditch which is rather muddy, has but one wooden gate for egress or ingress; it is not occupied, nor is there a bridge anywhere over the ditch except the one in the

direction of the gate with which it communicates. In like manner there is no wall around the collection of houses, and consequently there are roads on all directions. The inhabitants have no bazars or bazar men except three or four individuals of the tribe of Gond, who supply them with rice and other necessaries. They themselves are of the same tribe, and speak the Gond language, which is not intelligible to strangers. Their clothes are simply a bit of cloth about one and a half cubits long, and seven to eight inches broad, with which they cover their nakedness, and which in Hindostance is called a Lungotee, but their heads and bodies are invariably left naked. This is the common clothing of both sexes, only the Lungotee of the female is a little larger than that of the male. Their diet consists chiefly of rice and dhal of green gram. The name of their raja is Bhopal Deo, who is blind and resides at Marunkah, which is situated two coss westward of Bustar, and where Mussulman merchants from Madras and Nagpore import and deal in coarse cloth, in return for which they export bullocks, &c., thence. Throughout these villages not a single shop for ordinary necessaries is to be met with, and both when a person travels here (whether it be to seek employment or for the purpose of speculation) and when he returns hence he shall not be able to obtain at a halting-place on the road more than one seer of rice and one fowl for himself, which its authorities will duly furnish, and say that the raja does not permit more. The roads are not broad and open, but so narrow that two persons cannot walk over them abreast, nor one after another without difficulty and inconvenience. The jungles are dismal and frightful; the trees of teak and bushes of bamboos, and other large trees, being thickly mixed and closely intertwined; the grass even grows to the height of a man's stature, and numerous streams and rivulets, frequently to be crossed over by the traveller, add not a little to the difficulties on the road; in fine, no one has a sufficient knowledge of these roads to be able to travel with pleasure and safety but the inhabitants themselves, who are well acquainted with their intricacies and quite accustomed to them. In their present state they are not fit for horses, elephants, and other large animals; the inhabitants use small tattoos. A horse of full size was never seen in these parts; wheeled conveyances are very rare. The fields produce corn, green gram, and the grain called codrow.

"Duntwarrah lies five stages west of Bustar; there are two streams in it called Sunknee and Dunknee, at the junction of which stands a temple in which human sacrifices were formerly made, but this abominable practice is now stopped. There is also a tannah of Nagpore stationed at this place. Chintalnad is the name of a fort seven stages southward, which is in the charge of Bappoo Raj, who, however, does not reside in it, living in a place called Devarcondah which is not far distant. Jeypore lies sixteen coss east of Bustar, and an amicable correspondence is always kept up between the two powers. In fact there is a standing engagement to the effect that whatever the raja (of Bustar) might obtain possession of from other powers should be divided between them.

"Rayapoor is fifteen stages from Bustar, and Nagpore ten stages from Rayapoor; there is a broad main road between the last two places."

Sunnud giving possession of an Agrarhum Village.

This is a sunnud granted to Nunadana Pertawadce Eyumkurrum Tatachary on the tenth of the increasing moon of the Asweja, in the year of Shalevahan 1628, by permission of his exalted Highness Asoph Jah Bahadur through the intervention of his follower Asheva Rao, Jaghirdar of the pergunna Hussunabad and Sunkergherree of the Circar of Kummum, Souba of Hyderabad. The said Asheva Rao informs his Gooroo Tathachary that he received full permission from his exalted Highness to grant him an Agrarhum village with its neighbouring hamlets in the pergunna Havalee of the Circar of Kummum, to be held on payment of an annual sum of Rs. 100; all revenues, whether from land or local taxes, to be his property; he therefore makes over the village to him in the name of Budruchullum Ramaswamy with great satisfaction, desiring him to fix his

residence in the village, to encourage tillage, whether by the ryots belonging to the village or by ryots from other parts, trusting that it may yield him much profit; he further directs him to dig wells and tanks, to plant fruit trees, cultivate gardens, and erect temples, to employ himself in devotional exercises and to feed Brahmins, at the same time offering up prayers for the long life and prosperity for himself and his august master.

IV.—STATISTICS OF THE CIRCAR OF PYTUN. By W. H. BRADLEY, Esq., Surgeon, H. H. the Nizam's Army; on Special Duty.

The Circar of Pytun takes the form of an irregular square, averaging twenty-four miles in length and breadth, and comprehends an area of four hundred and forty-six square British miles, thirty-four and a half of which are claimed by Scindia. Its boundaries are Doulutabad and Jaulna upon the north, Ahmednuggur on the south, Doulutabad upon the west, and Bheer and Jaulna upon the east.

I am not aware that the geological features of the Circar differ in their general bearings from those of Doulutabad; here as there, the same evidences present themselves of the nature of those stupendous secondary instruments the Creator employed in adapting the earth for the higher forms of organization, transforming the level of an immense ocean bed into plains teeming with life. The period when the rocks of these trap districts were formed and disposed in the order we now perceive occurred in all probability in those remote geological epochs that long preceded the historical ages of the world. Deep waters then covered what is now occupied with dry land, over whose sedimentary precipitations molten streams of igneous matter flowed, ejected from fiery caverns beneath their beds; the eruptions subsiding to return again at uncertain intervals, the varying thickness of their deposits marking faithfully the periods of repose; in proportion to the amount of heat transmitted, their structure assumed more or less a crystalline character; the intensity of this heat would have sufficed to obliterate all traces of organic life, had any existed, but the conjectures are that these ancient waters presented conditions incompatible with organic life, in being strongly impregnated with red oxide of iron, as well as perhaps being of a very high temperature; as to the period when the whole of these superimposed rocks were upheaved, modern geologists have assigned an early period of the tertiary epoch as about the most probable; the inferences drawn from the discoveries of fossil remains in India have justified the conclusion of Dr. Falconer and others that its continent was raised at this time, and that not by single efforts of subterranean expansion, but from several with intervening periods of long repose; we have direct evidence in support of this in the opposite parallel ranges forming the northern boundary of the Berar valley, where I found upon its summits, at a height upwards of 2,000 feet above the plains, feeble traces yet perfectly distinct of a species of tubular mollusk in beds of silicious matter, whilst along their bases shiftings of level of a far more recent period are apparent in the upheaved beds of freshwater lakes now some two or three hundred feet above the valley.

The most constantly occurring surface rock is the ferruginous claystone in its various forms, the whole of which abounds with silicious minerals, by which we are led to surmise the vast quantities of this substance the ancient seas held in solution: silicates of the hydrated aluminous variety are the prevailing ones, diffused either in minute particles throughout the rock generally, or occupying vesicular cavities and fissures in pseudomorphous and isomorphous masses; it is by no means an unusual circumstance to find crystals of zeolite, quartz, calc spar, confusedly packed together in the same cavity, the specific forms of whose crystals do not seem affected by the presence of each other, but may be detected, though blended in one mass.

For nearly two-thirds the way up the mountains their structure is principally formed of this reddish rock; above them are placed wacken beds, with trap and

basalt interposing ; calcareous matter is as abundantly disseminated throughout these upper rocks as the silex is in the lower ones. The apex of all is generally found to be stiff beds of black aluminous soil, deposited in long flat levels, and doubtlessly the alluvial deposits of ancient waters. Towards the lower levels of the Circar the substratum is found consisting of deep alluvial beds, the decomposed portions of the harder rocks which the streams have there deposited ; the rocks they lie superposed on are of a purplish grey colour, partaking of an amygdaloidal as well as porphyritic character, and form the beds of the large rivers and streams.

The Circar may therefore be arranged under three divisions, all possessing properties peculiar to themselves. The first will comprehend the hilly tracts, where we find a strong aluminous black soil capping the summits, or a stony and unproductive surface running along the bases, much broken by nullas, as well as being rendered further unprofitable by the constant occurrence of broad rocky ledges, on whose surface, soil, if any, does not extend to a greater depth than an inch or two. The second takes in the middle portions of the district, which are undulating, and much intersected by watercourses ; here insulated patches of black soil occasionally occur, generally found resting on calcareous beds or soft wacke with imbedded globular basalt, being boggy and unproductive or fertile, according to the nature of the substratum ; the soils are very varying in quality, sometimes rich and marly, and at others kunkery and light, so that they are hardly worth the trouble of cultivating. Lastly the tracts along the margin of the river Gunda and Godavery, where the alluvial deposits washed down from the higher lands form beds of great depth and fertility. The silicious clay and decomposed ferruginous claystone rocks produce a very rich soil, possessing a degree of compactness, which, whilst not being too stiff in its nature, is devoid of those yawning clefts and fissures so common in soils where this character is an excess. It is indeed a soil equally adapted for rubbee as khureef crops, and also offering excellent localities for irrigation. On the high banks of the Godavery east of the city of Pytun are valuable yellow clay beds, the sources from whence they are derived being the destroyed felspar of the trap rocks.

The leading features of the province are plains swelling out into gentle undulations, and sloping very considerably from a higher barrier of mountains on its northern confines, towards the basin of the Godavery skirting the southern limits ; these plains are remarkably denuded of trees, which are only to be seen of any size in scattered clumps noting sites of villages, but the size and beauty they often are observed attaining to is sufficient proof that their absence is not to be assigned to any fault of soil. Innumerable mountain-fed streams cover the surface, distributing moisture to every portion of the Circar. Besides these mountain streams, three large rivers flow through a portion of the district, namely, the Sewnee, Gunda and Godavery, into which latter river all ultimately are disembogued.

From the general aspect of the Circar very opposite conclusions of its fertility would be drawn if viewed either at the cold or hot seasons, all superficial moisture disappearing in the hot weather, from the generally emissive nature of the soils, its treeless condition, as well as ready drainage, the sloping plains present ; yet the subsoils are not altogether without moisture, formed as they are of wacken beds, and degradation of sundry trap rocks ; in their absorbent character a large reservoir of moisture still exists which, rising in vapour at the sultry period, tempers the heated atmosphere by cool nights for a long time into the hot weather.

The chain of mountains to the northward, after skirting the Circar for six miles in a direction running east and west, suddenly turns towards the south-east, and continues this course for the distance of 16 miles, when it passes the boundary line. The name the first part of the chain is known by is that of the Sittarah hills, the principal part of which

stands within the boundary line of the adjoining Circle of Doulutabad, a small portion at its eastern end only jutting out into Pytun ; here the chain inflects, and changes its direction southward, assuming the name of the Mahadeo hills. The height of the Sittarah hills has been trigonometrically ascertained to be 667 feet above the plains of Aurungabad, which gives a general height of 1,767 feet above the sea; the Mahadeo portion at its highest point does not exceed 1,687² feet above the sea ; the broadest part of the chain is at the Paroondée Ghats, where it measures four miles across ; the narrowest parts do not exceed one mile. The general forms the hills present are long flat levels with hammocks and conical eminences having flattened summits ; through the sides of the mountains horizontally inclined lines are seen, of a darker colour than the rest of the rock, and often observed projecting in terraces or ledges ; these are the basaltic rocks, whose powers of resisting the effects of weather are greater than the softer amygdaloid or wacken beds they are seen reposing in ; from beneath these darker rocks slopes of abrupt inclination extend out into the plains, having the southern of a greater angle than the northern one, and, for the same reason, less sprinkled with vegetation. The trees found upon the flanks and levels of the table land are all of a dwarfish appearance, the black aluminous soils there prevailing being unfavourable for their vigorous growth—probably occasioned by the great contraction aluminous soils undergo on exposure to heat, and which may injure the roots by pressure as well as excluding air. The trees principally observed were semecarpus, boswellia, melia, grisea, pavetta, bauhinia, cassia, capparis, xymenia, flacourtia, zizyphus, clematis, several varieties of mimosa, grewia, prosopis, &c. ; at intervals of the chain diverging ridges occur, including gorges, and secluded dells of much beauty, the luxuriant nature of whose vegetation is in striking contrast with the arid-looking sides of the adjoining mountains ; along their bottoms is usually seen a stream of limpid water, that oozes from the foot of the mountains ; the highest points at which they commence to flow is about 1,500 feet above the level of the sea, and are generally seen strickling from seams and fissures in wacken strata, the chain running in a direction nearly perpendicular to the inclination of their dip, which appears slightly to be to the eastward of north. These streamlets pass on and mingle their waters, to form large rivulets, that aid in no small degree the general tribute to the Godavery, or sinking gradually into the porous beds forming the subsoil of the Circle occasion abundant subterranean reservoirs of moisture.

The rivers passing through the province are the Godavery, Sewnee, and Godavery. Gunda. The Godavery† is the grand recipient, and skirts the

southern boundary in a flexuous course from west to east for the space of 25 miles ; entering the boundary at the confluence of the Sewnee river, it receives many large-sized affluents in its progress, the chief being the Sewnee, Gunda, and a large stream formed by the confluence of the Yurr and Wurra, with various streamlets draining the country north and south of its course. The bed of the channel through which the river flows is generally seen to be formed of sheets and ledges of the red porphyritic claystone, the breadth varying considerably, but at Pytun, which may be taken as the average, it measures above 900 yards from bank to bank ; the débris of rocks and gravel brought down by the monsoon torrents strew the centre of the channel, whilst heaped along its margins are deep beds of finer depositions, left there by the silt-charged waters ; the coarser débris are fragments of basalt, claystones, agates, chalcedonies, heliotrope and zeolites, both fibrous and laminar, the breaking down of the latter into minute particles imparting a micaceous glitter to the finer sand. The banks are generally abrupt on both sides, though highest along the northern, where they are seen from 20 to 100 feet in height ; their formation is principally stratified deposits washed down from the hills and plains above, through whose loosely consolidated materials deep vertical chasms constantly are occurring, formed by the erosion and obrusion of streams struggling to unite their waters with the river, and occasion perplexing difficulties to travellers directing their route too closely along its margin. Sections of the banks thus laid bare to view

² As shown by the aneroid barometer.

† Called by the natives Gungabae.

frequently expose curiously-shaped stalagmitic calcareous concretions, whilst at other places huge masses of indurated breccia have been insulated by the stream and fallen, being masses of sand and gravel hardened into a natural concrete by the continued percolation of waters laden with calcareous matter. The spontaneous vegetation that appears along the banks is confined generally to plants of a prickly nature, as the prosopis, xymenia, and several kinds of baubul, as the ramkanta, differing from others in its straight and close habits of growth; the acacia tomentosa, the acacia farnesiana, emitting a very fragrant odour, and the acacia latronum, also deliciously odoriferous, but more remarkable for its enormous white thorns; with these are sometimes seen the dalbergia arborea and cassia auriculata; lower in the banks and close to running water bushes of vitex, oleander and tamarisk are found.

The Sewnee river enters the Circar in latitude $19^{\circ} 39' 30''$ north, and longitude $75^{\circ} 12''$ east, keeping a south-easterly course for about ten miles, along the western boundary line, falling into the Godavery about half a mile west of Saondkhair; deep sandbanks have been thrown up at the point of junction by the enormous quantity of detrital matter brought down annually by the rains, rendering a passage across them difficult, if not dangerous.

The Gunda enters the Circar eight miles to the northward of Saindoorwarrah, which rests upon its right bank, and after receiving the waters of two or three streams that drain the country towards the Sittara hills passes onwards in a meandering course for 18 miles in a southerly direction, through broad alluvial plains, to empty itself into the Godavery near to Jogeesevee; various mountain streamlets, uniting in their progress towards the basin of the Godavery, form two or three large-sized streams,—the principal of which are the Yurr and Wurra, descending from the Sittara hills,—and disembogue themselves between Pytun and the village of Gungalwarree into the Godavery; a large-sized stream without a name rises below the bases of the hills about Kusnair, and descending southerly in a very winding course quits the Circar half a mile north of Barungaon, and ultimately discharges itself into the Godavery a mile westward of Nowgaon.

In a province whose natural hydrography offers such facilities for improving its industrial economy it is very melancholy to see how little it has been taken advantage of. In the whole Circar there exist but three artificial reservoirs of water, the whole of which are in disrepair, and not employed for purposes of irrigation. It was not so formerly, either in the olden times of Hindoo Rajas, or more recently in the palmy days of the Mahomedans, whose ruined tanks and watercourses by their number and costly material sufficiently testify the importance they attached to such undertakings. The sources of irrigation are derived from the mountain streams, whose bunds are dammed up, and their waters diverted over the cultivated lands, by the usual

ingenious arrangement of channels. Of these mountain streams there are 161 thus made available—94 in a serviceable condition, and 77 out of order. The entire number of wells is 1,046: of these

317 are constructed of stone—225 in a serviceable state, and 92 unserviceable. Wells built of bricks amount to 722, of which number there are 478 in working order, and 244 out of repair. The number of wells formed without facing the shaft are 7, all out of order but one. Upon the roadside occasionally are seen handsomely-built wells with steps leading to the water, the works of benevolent individuals, being entirely restricted to the use of wayfarers, for whose especial benefit likewise are seen at certain distances upon the great thoroughfares stone water-tanks shaped like the gungal or large earthen jar of the country, the whole of which are broken.

Agriculture.

There are many circumstances by which to account for the present rude condition of Indian husbandry, and those well acquainted with all its bearings attribute, and truly too, the major part of its rudeness to the faulty framework of the Indian social system. Take for instance

the non-indulgence of animal diet as an example, and we perceive what disadvantages the ryot labours under, deprived as he is of those benefits resulting from rearing stock, without whose aid he is not in a position to develop to the fullest extent the capabilities of the land, nor restore it to an average degree of fertility when exhausted ; but far beyond this is the universal poverty that exists, and apathy of the holders of land ; these help to fill up the measure of the ryot's miseries ; however intelligent he may be, he is never in a position to employ his wits to his own benefit, and labouring on for others his tillage is performed in the careless manner we so often have to witness.

The principal cultivated lands in the Circar paying tax to Government are those brought to perfection either by rain or dews, such as are irrigated being only about the 24th part. The Zeraet lands yield for the most part two crops of the coarser grains annually, lands reserved for corn being sometimes kept fallow during the khureef. It is not usual to disturb the soil by ploughing, excepting at intervals of some years, the bullock hoe answering every purpose of preparing for seed ; one of the objections against ploughing is that it would interfere with the compact condition of the sub-soil, wherein the roots of the plant find protection ; the Coonbees under usual circumstances, when ploughing is requisite, are never seen entering the soil deeply ; this may possibly be hurtful in more ways than by loosening the compact sub-soil, for the basaltic earth brought to the surface would be crude, and have to be exposed for some time to the influence of the elements before it yielded its specific virtues. In ploughing, ridges are never formed, it being an object to retain, rather than drain away, moisture ; the furrows are laid in the same manner as practised in Europe, keeping them as straight as can be managed, turning in a circular manner at the end of each furrow, and returning back alongside the one just formed, laying off the head lands at the close. The Coonbee yokes his cattle at sunrise, and works till 11 and from 2 till sunset ; lands are ploughed up immediately the crop is carried away, and then left till the time comes round for preparing them further for sowing ; as the hot season closes in, all are again busy preparing land for the early harvest, which is the heaviest ; towards October the late harvest is all put in.

Meteorology.

Meteorology. Possessing no data of its climatic variations, I have nothing to offer under this head, but assume the fact that it differs but little from what has been observed at Aurungabad.

PRODUCTIONS.

Khureef, or autumnal harvest ; corn, jowarree, or *Holcus Saccharatus*.—Of this grain two varieties are grown, the red and white ; the latter is a rubbee crop, and differs from the former in possessing a stalk more abounding in saccharine matter, and in great demand as forage. This grain is the principal produce of the Circar, as bajree was found to be in Doulutabad ; both form the staple diet of the peasantry, but jowarree is considered far less nutritious as well as more indigestible than bajree ; the flour is made into cakes and porridge. It is generally sown alone, though occasionally seen mixed as the compound husbandry of the season. In the rubbee crop koosumba is associated with it very often, in the proportion of three furrows to every fifteen or twenty. About the middle of the monsoon is the usual period for sowing, though the earliness or lateness of doing this entirely depends on the fall of rain. The time for reaping occurs about October. It is an exhausting crop, and is never sown twice on the same land.

There are 46,201 beegas occupied with its cultivation, producing a turn-out of 15,777 pullas. Its current price is Rs. 2-2 per pulla. Dear seasons 5 rupees, cheap Re. 1 as. 10 ; the straw of the white variety sells for 2 rupees for a hundred bundles.

Bajree, *Holcus Spicatus*.—Very largely cultivated, and well adapted to the soil of the province, being hardy and capable of thriving on the rubbee soils close up to the hillside. Its mode of culture is the same as that followed for jowarree, and it may be sown alone or mixed with various sorts of pulses and umbarree ; it ripens in four or five months.

23,971 beegas are sown, yielding 7,223 pullas ; current price Rs. 2-4 per pulla, dear seasons Rs. 4-9, cheap Rs. 2-2.

Rice, *Oryza Sativa*.—The amount grown of this grain is very insignificant, and that only at one village, situated in the Pytun purgunna, called Kusnair. Its quality, I understand, is of an indifferent description.

Six beegas alone are employed in the cultivation, yielding $2\frac{1}{2}$ pullas of paddy ; current price in the husk 5 rupees per pulla, cleaned Rs. 13-8.

Mukkai, *Zea Mays*.—This is grown in the rains, principally for its unripened succulent grain, which is eaten roasted ; the ripened grains are ground into flour, and made into a porridge called umbeel ; it requires a rich soil with plenty of moisture ; the seeds are put in about a foot apart, and throw up one stalk, on which two heads are generally borne. It is fit for plucking in its unripe state in about three months.

Indian corn.

Current price Rs. 5 per pulla, cheap seasons Rs. 3, and dear Rs. 7.

Rajgeerree, *Amaranthus Polygamus*.—A small grain sown on slips of garden lands, or by the sides of nullas, where water is plentiful ; the grain when made into flour and mixed with spices and sugar forms a cake that is eaten on fast days by the Hindoos, in the same manner that the Catholics eat fish in Lent. The tender leaves make a pleasant-tasted spinage. The husk is freed from the seed by rubbing it between the palms of the hands.

Rajgeerree.

Current price Rs. 6 per pulla, cheap seasons Rs. 4-8, and in dear Rs. 10.

PULSES.

Toor—*Cytisus Cadjan*.—Sown alone or mixed ; it requires a rich free soil, and ripens in six months ; when ripe, the plant is pulled up by the roots and the pods detached by being struck against a stone or log, after which oxen tread out the seed ; the refuse is greedily devoured by cattle, whilst the stalks serve an economical purpose to the Coonbee, in supplying a material for the large baskets in which he stores his grain. The seed is called dhall, and resembles split peas ; when boiled soft into pudding it is called warrun. There are 6,995 beegas sown, yielding 1,891 pullas.

Pulses.

Toor.

Current price Rs. 3-8 per pulla, cheap seasons Re. 1-12, and dear Rs. 6.

Moong—*Phaseolus Trilobis*.—This pulse comes to maturity in half the time required for toor, and is sown early on lands intended for rubbee crops. It is grown either mixed or alone, and its management is like that of toor, but as an article of diet far inferior ; 763 beegas are under cultivation, yielding 195 pullas.

Moong.

Current price Rs. 4 per pulla, cheap seasons Rs. 2-10, and dear Rs. 5.

Ooreed—*Phaseolus Maximus*.—A grain of inferior description, and given to cattle ; sown as a mixed crop. Current price Rs. 5-4, cheap seasons Rs. 5, and dear Rs. 7.

Ooreed.

Kooltee—*Dolichos Biflorans*.—This, with one or two other leguminous plants of the same species, is grown mixed, and affords a good grain for cattle ; the tender green pods serve for food.

Kooltee.

Current price Rs. 1-8, which is cheap, dear seasons Rs. 4.

OIL PLANTS.

Tillee—*Sesamum Orientale*.—Sown on head lands and corners of fields, in light free soils ; it is a very valuable plant, on account of the seeds yielding a bland oil of fine quality, that keeps sweet for a long period. The Coonbee fries his vegetables in it, and mixes it also with the seeds in cakes.

Oil Plants.

Tillee.

8 seers of seed will yield on expression three seers of oil, the value of which is 6 annas.

Tillee seeds, current price Rs. 8 per pulla, cheap seasons Rs. 4-4, and dear Rs. 9.

Karleh—*Verbesina Sativa*.—This is called the black tillee, and thrives on poorer soils ; it is grown alone, and requires $4\frac{1}{2}$ months to ripen its seeds. When in flower the land it is grown on presents a very rich appearance to the landscape. The plant is drawn up by the roots, and beaten against the ground to detach the seeds ; the oil is used for lamps.

Karleh.

4 seers of grain yield 1 seer of oil on pressure.

Current price Rs. 5 per pulla, cheap seasons Rs. 3, and dear Rs. 6.

Yerendee—*Ricinus Communis*.—Two varieties of this are grown about villages, and take five months to ripen the seeds; about 4 seers of seeds will yield 1 seer of oil. It is burnt in lamps and also used medicinally.

Yerendee.

CORDAGE.

Sunn—*Crotolaria Juncea*.—Grown alone on rich land, but quickly exhausts its virtues; the time for sowing is when the land has become moistened by the first shower in June, and the crop is ready to cut in October; the plant is steeped in the bed of some stream to loosen its fibres, so that they may be detached from the stalk easily. There are 33 beegas cultivated, yielding 9 pullas.

Cordage.
Sunn.

Current price Rs. 12 per pulla, cheap seasons Rs. 4, and dear Rs. 15.

Ambarree—*Hibiscus Cannabinus*.—Generally seen cultivated in all villages, and as one of the mixed crops of the season. The process of steeping and cleaning the fibre is similar to that required for Sunn; its fibres are beaten and twisted into ropes for the use of wells and carts. An agreeable spinage is procured from its young tender green leaves, and the stalks are useful for supporting the tiled roofs.

Ambarree.

RUBBEE, OR SPRING HARVEST.

Corn.

Wheat—*Triticum Sativum*.—This is the chief grain crop of the rubbee harvest; the land it is sown on is a heavy loamy soil, whose texture and composition are both fitted for the maturity of the plant, being moderately compact and calcareous. Wheat lands are usually kept fallow during the khureef, or it may be an early crop of moong is taken, which is no bad preparation to wheat. It is grown alone or mixed sparingly with koosumba. The variety generally cultivated is the katia, and is sown in the proportion of five seers to the beega. The land having been prepared after the rains by ploughing and pulverizing the soil, it is hoed to loosen the ground and clear the weeds, in order that it may tiller freely; to secure its well-doing, two or three showers are required after it has formed its stem, after which nothing more is needed but the night dews to bring it to perfection. It is sown in September or October, and ripens in January. The harvest is gathered in by reaping with the sickle, and tying up the sheaves in three or four handfuls to a bundle. The grain is detached from the husk by cattle treading it under foot. Wheat lands occupy 1,127 beegas and yield 5,127 pullas.

Corn.
Wheat.

Current price Rs. 6-8 per pulla, cheap seasons Rs. 3-12, and dear Rs. 6-13.

PULSE.

Chenna—*Cicer Arietinum*.—A rich soil is required for this crop, which is prepared much in the same manner as wheat, after having been occupied by bajree or some pulse crop of the khureef. It ripens in four months, requiring no further moisture to mature the plant beyond that derived from the dews; 4,739 beegas are sown, yielding 1,140 pullas.

Pulse.
Chenna.

Current price Rs. 6 per pulla, cheap seasons Rs. 3, and dear Rs. 7-6.

OIL PLANTS.

Kuldec—*Carthamus Tinctorius*.—Very often drilled in with wheat and jowarree, and sometimes sown alone. It ripens its seeds in five months; the seed is freed from its husk by beating.

Oil Plants.
Kuldec.

8 seers will yield about 1½ seers of oil; the refuse of the mill is given to cattle. The oil is burnt in lamps.

3,018 beegas yielded 1,252 pullas.

Current price Rs. 4 per pulla, cheap seasons Rs. 1-12, and dear Rs. 4-5.

Ulse—*Linum Usitatissimum* is a mixed crop, or sometimes sown alone in small stripes on wheat land. Its ligneous fibre is not

Ulse. employed, the seed alone being required, which on expression yields a rich oil. The plant ripens in four months and a half ; when ripe the plant is pulled up, and the seeds trodden out by cattle.

4 seers of seeds will yield on pressure 1 seer of oil, which is generally employed for the commonest purposes. The refuse of the oil mill is given to cattle.

Current price Rs. 4 per pulla, cheap seasons Rs. 2, and dear Rs. 5.

Tobacco.—Principally grown about the richer lands in Pytun pergunna ; there has been a partial failure of the last year's crop, through great want of rain at the latter part of the year.

Tobacco.

448 beeghas returned 102 pullas.

Current price was in consequence very high, Rs. 20 ; cheap seasons Rs. 10, and dear Rs. 22-8.

Sugar—*Saccharum Officinatum*.—There is very little cane grown in the Circar, the natural direction of the cultivation being towards grain, though there are not wanting favourable localities for sugarcane.

Sugar.

The extent of land under sugar cultivation is 36 beegas, and the whole quantity of goor produced was but 50 pullas.

From want of rain, goor was at a high price, rising to Rs. 30 the pulla : during cheap seasons it sells from 12 to 16 rupees.

Prices of Principal Products.

Prices of principal products.

A scanty supply of rain whilst the rubbee crops were on the ground caused high prices last year ; this was more particularly the case with sugarcane, tobacco, tillee, hemp and wheat.

The current price of goor was Rs. 30 per pulla, whilst the average of six years is but Rs. 18 ; gram was Rs. 6 per pulla, a six years' average being Rs. 4 ; tobacco Rs. 20 per pulla, whilst the average of six years is but a little above Rs. 12 ; tillee Rs. 8 per pulla, the average price for six years being Rs. 4 ; hemp Rs. 12 per pulla, a six years' average giving Rs. 10 ; wheat Rs. 6-8 per pulla, the average price of six years being something beyond Rs. 4 ; it is needless specifying further instances, as a table containing the return of prices of principal products will be found in the general Appendix.

Domestic Animals.

Bullocks.—The Coonbees obtain their principal supply of bullocks at the various cattle fairs held within the Circar, which are Lakagaon, Domestic Animals. Wahigaon and Peepulwarree ; such as will suit their purposes

Bullocks.

may be purchased from 5 to 25 rupees ; they are small, but hardy and active, and of great docility. Three pair of bullocks keep one plough going, and it is always customary to have the pair fastened to the beam larger and stronger than the leading ones. The breed is peculiar to the Deccan, the chief points consisting in a rather long head with straight nose and forehead, horns gradually turning upwards, outwards, and backwards, sometimes crumpled ; ears not pendulous ; narrow withers, surmounted by a hump ; straight back ; high haunches, drooping suddenly to the tail ; and very fine limbs, with a dewlap more or less developed. The prevailing colours are white, red, dun and mottled, and their average height from 45 to 55 inches. They are never shod. These patient labouring animals are the Coonbees' chief wealth, and receive from them every consideration ; at times they are hard worked, and towards the close of the hot weather they are helped with oil cakes and the cheaper grains. A bullock if not put to the yoke at too early an age will with proper care last twelve years, and even longer ; but it is seldom found the case that breeders can afford to keep their steers till they have reached their proper working strength, and from being too soon at the yoke are shorter-lived accordingly. Murrain is the disease that principally attacks them, in a great measure arising from deficient nourishment in dry seasons.

There are 7,681 bullocks employed throughout the Circar for agricultural purposes.

Cows.—The sorry appearance of the cows is an obvious indication of insufficient pasturage; stunted in sustenance, they have degenerated and become dwarfish in size, their medium height being under 43 inches. They are docile and tractable, for their usual abode is under the same roof with their master; at sunrise they are driven to graze, in company with the goats and buffaloes, returning late in the afternoon. The quantity of milk they yield is very small, being from half a pint to a pint twice a day, which is all added to the general stock derived from the milch buffaloes, to be formed into ghee, milk itself being seldom used as an article of diet, though buttermilk itself is a national luxury. The value of a cow is from 4 to 8 rupces; their number in the Circar is 5,833, and their calves 3,330.

Buffaloes. The buffaloes here are not of a fine description, and are the breed peculiar to this part of the Deccan. They are reserved entirely for the dairy. The females go twelve months with young, and give their first calf when four years old, living generally to twenty years, during which period they will bring forth seven or eight calves; the quantity of milk they yield varies from one to two seers or more daily. Their value ranges from Rs. 7 to Rs. 20.

There are 1,423 milch buffaloes, 93 males, and 659 calves.

Sheep.—The breed usually seen in the Deccan are without horns, have long pendent ears, great concavity of forehead, short, hairy, black fleece, and long slender limbs. The ewe receives the ram when about a year and a half old, and pregnancy lasts for 28 weeks; after having lambed five or six times the ewe begins to decline, but lasts the longer for better pastures. They are sheared twice a year. The average weight of one fleece is about 4 oz., and it is only fit for manufacturing into the common country blanket, which is the shepherd's occupation.

The carcase of a well-grown sheep weighs about 24 lbs., and when fed with care is well-tasted. Value ranges from 8 to 12 annas.

The number of sheep returned was 7,864.

Goats.—The varieties of goats are of two descriptions—the shaggy long-legged breed of the country, with pendulous ears; and the erect-eared, short-legged breed of Guzerat; these indeed in their mixing together have formed a third variety, partaking of both kinds; the period of gestation is about 23 weeks, and the females usually produce two and sometimes three kids at a birth. The milch goat occasionally gives $\frac{1}{4}$ lb. of milk twice a day.

The number in the Circar is stated to be 4,661, their value individually varying from 8 annas to 1 rupee.

The number of horses is confined to a very small amount, belonging to the Government Officers and wealthier merchants at Pytun. The substitute for the horse is found in the pony, who, though generally possessing little symmetry or beauty, is very strong, hardy and enduring, and capable of undertaking long journeys; occasionally they are seen possessing qualities entitling them to a blood character, in the softness of their skin, and shape of head and limbs. The predominating colours are bays, chestnuts, greys, roans and cream colour. The price of a good pony for riding varies from 15 to 24 rupces, whilst an inferior description for carrying packs may be procured at Rs. 5 and upwards; a tattoo load may be estimated at two maunds and a half.

There are 662 ponies and 106 colts in the Circar.

Asses.—These useful animals appear to labour under the same degree of neglect as in western Europe, and are of a poor under-sized description. They are principally owned by grain merchants, droves of them being frequently seen upon the road transporting grain on their backs. Potmakers and charcoal burners likewise employ them in their occupation. A donkey's load is reckoned at $1\frac{1}{2}$ maunds. His value varies from 7 to 12 rupces.

There are 347 in the Circar.

Swine.—These are not present in every village, being excluded wherever Mussulman prejudices prevail. They appear to differ in no essential points from the wild species, having gained nothing by domestication but a filthy habit of feeding, being the scavengers of the village, instead of the depredators of the fields.

Poultry.—Fowls are very sparingly reared, and had indeed nearly disappeared in many places about this part of the country three or four years back, in consequence of a succession of bad seasons; the number now is beginning to increase, but is still very small; among the different mixed breeds are seen the kulm, standing 22 inches high, and weighing 3 lbs. more or less, whose value is priced from 1 to 3 rupees each. There is a common variety with black periosteum, and another with feathers turned the wrong way like the Friesland breed. Price of full-grown fowls is five for one rupee, or eight half-grown. Eggs are sold at the rate of about 70 or 80 for a rupee.

The number of fowls returned from the whole Circar is but 513.

The Circar is divided into three purgunnahs, namely, Pytun, Saindoorwarrah and Dhawurwarree.

Pytun Pergunna.

This purgunnah is a kusba of 133 villages, of which 5 belong to Scindia, 17 are alienated, and 1 held in Mokassa; the number of deserted villages, whose lands are tilled by those adjoining, amounts to 28, of which 2 are alienated.

Towns and Villages.

Pytun is the capital of the whole Circar (known as Puttun by the Mahomedans, or often styled Moonghy Pytun). It stands upon the left bank of the Godavery, in a bend of the river, in latitude $19^{\circ} 33' 19''$ north, and longitude $75^{\circ} 26' 2''$ east.

Travelling distance to Bombay 209 miles. To Madras 695 miles. To Hyderabad 307 miles. To Nagpoor 299 miles. To Aurungabad 32 miles. To Jaulna 44 miles. To Ahmednuggur 61 miles. To Calcutta 976 miles.

In the sacred writings of the Hindoos the name of Pratishtan or "the Capital," Saintpoora or the "City of Blood," Munja Pratishtan, and Brahmapooree Pratishtan, are all supposed to refer to the modern city of Pytun; and this appears a plausible conjecture from the confirmation it receives of uniform tradition to that effect; but for any consistent or credible account of those remote periods we are left as much in the dark as we are regarding the heroic ages of the Greeks. Chronology and geography seldom are seen hand in hand in the narrative, the substance of which is oftentimes so outrageously extravagant that what to reject or receive as authentic, from the imperfect record, is a puzzling matter; however, of this we are tolerably certain, that the foundations of Pytun were laid in very distant times, and, according to the Mackenzie Papers; it was the birthplace and metropolis of the Rajah Salivahan. It is, however, from strangers to the country, the Greeks, that we derive the slight information we possess of the earlier periods of India, and in the "Periplus of the Erythrean Sea" we read of a town called Plithana, in the Deccan, which is generally supposed to be Pytun. It is mentioned as one of two distinguished marts, the name by which the other was known being Tagara. Plithana was 20 days' march south of Broach (230 miles); and Tagara, a great city, was ten days' journey east of Plithana.* Mr. Elphinstone, in a note in his History of India, shows very probably how the error may have arisen, by Ptolemy mistaking Plithana (ΠΛΙΘΑΝΑ) for Paithana (ΠΑΙΘΑΝΑ), a circumstance readily enough imagined, where the difference is so small; to assign the site of Tagara, is, however, as he observes, a more difficult matter; his opinion that its situation must be somewhere in the neighbourhood of Poona meets a remarkable confirmation in the cave inscriptions of Junir, Kanari, and Carli mentioning Thakapoor as the ancient name of that locality, and which led Dr. Bird to suppose it might be the celebrated city of Tagara, when Kalian

* Elphinstone's History of India, vol. I., p. 422.

was the maritime emporium of that part of the country;^o to return, however, to Pytun,† Colonel Wilford informs us that a prince of Malwa, called Munja, and uncle to the famous Rajah Bojah, removed his seat of government from Oojein to Sonitpoora, upon the Godavery; and according to the appendix of the Agni Purana it was named Munja-Puttana from him; it received afterwards the name of Sonitpoora, on account of a bloody battle fought there, in which Munja was slain,‡ and his army defeated with great loss. Whether it be, therefore, the present Moonghy Pytun is merely a conjecture, but the coincidence of names is sufficiently remarkable to lead to the supposition. In the time of Ptolemy, Pytun was supposed to have been the metropolis of Sri Pulimon, one of the Andhra kings,§ whose name the Greek historian gives as king Siri Polemaios.

The city is pleasantly situated upon rising ground on the banks of the Godavery, and approached through broken gullies and hollows; the rock it rests on is a purple amygdaloid abounding with silicious minerals, and worthy of note from the Periplus specifying onyx stones as the article brought from Plithana. We observe little now that distinguishes this once celebrated city from others of less pretensions, all traces of which have disappeared amidst the religious feuds and political convulsions that have shaken this part of the Deccan. A mean wall 20 feet high, having nine gateways, surrounds the town, which towards the river front rests upon steep banks; at the south-west angle they have a precipitous scarp of nearly 150 feet, and there are seen the ruins of the old fortress, which rose high above the town. The streets within are narrow, and much impeded with rubbish; the greater number of houses are tenantless and in ruins; whilst those inhabited have a mean and squalid appearance, particularly the eastern part of the town, where the weavers reside; the richer portion of the community, such as the soucars and merchants, occupy several lofty stone buildings, that rise in a conspicuous manner above the surrounding houses. The common style for the better sort of buildings is brick and of a very excellent description; but the greater portion of these are deserted and falling to destruction. Outside the gate leading to Aurungabad is a suburb called Jainpoora, occupied entirely by Jains, who gain a livelihood by weaving. The number of occupied houses amounts to 2,126; of these more than half are of the common description, with mud walls and tiled or terraced roofs. Brick-walled houses are but a sixth; whilst the mud hovels with flat or thatched roofs amount to about a third of the whole.

Population.

From Pytun being a celebrated Tirth, or place of pilgrimage, Brahmins are found a numerous class. These are composed of three sects—the Smart, who worship Siva; the Vaishnav, worshippers of Vishnoo; and a very small class called Sakt or Wamagee, who exclusively confine their adoration to the consorts or energies of the deities. Those who assist in the rites and ceremonies of their five great sacraments, the Bheekshooks, far outnumber the Grihust sect, that concern themselves with secular matters. The bulk of the community are weavers, amounting to a sixteenth of the population, but their numbers are rapidly diminishing, and have been doing so for many years past; the various classes will be found arranged in a table in the Appendix.

Census of the City of Pytun.

Hindocs.....	{ 2,912 Men,	1,472 Boys,	4,364 }	8,851
	3,409 Women,	1,981 Girls,	4,490 }	
Mahomedans...	{ 816 Men,	557 Boys,	1,373 }	2,718
	914 Women,	431 Girls,	1,345 }	
Total...11,572				

Public Buildings.

There are no public buildings requiring particular notice, nor is there to be found a single record within or without its walls by which its remote antiquity is to be inferred; the sole inscription I could discover did not go back further than

^o Bird's Historical Researches, pp. 56-72.

† Ayacu Akberi, vol. II., p. 55.

‡ Asiatic Researches, vol. IX., p. 199.

§ Asiatic Researches, vol. IX., p. 199.

four hundred years, and this was on a marble tablet in a ruined temple on the south of the town, apparently dedicated to Mahadeo, but now taken possession of by the Mangbhows and devoted to Krishna.

Amongst the various Hindoo places of worship the temple of Vejai Pandurung is the most conspicuous, and is in connection with the large temple of the Wyshenawas at Punderpoor, on the banks of the Bema river. Vejai Pandoorung is one of the numerous names by which Vishnoo is distinguished, and is here represented by a small standing figure of alloyed metal, covered with precious jewels, the value of which some years ago tempted an attack upon the temple by robbers, who dispossessed his godship of his ornaments, which were, however, ultimately recovered.

The Brahmins connected with the Punderpoor sect of worshippers have shown a liberal-minded and enlightened principle by adopting the vernacular dialect in their writings, that is, using Pracrit instead of Sanscrit, Pracrit being merely the spoken language in an antiquated form. This sect have had amongst their number many celebrated writers; whilst the Samaut Brahmins, affecting to despise the idiom of the day, have contributed little to the literature of their country. The contempt of Hindoo writers for Pracrit is amusingly shown in the Sanscrit dramas which Mr. Wilson has translated, where the hero and principal characters are indulgently permitted to speak Sanscrit, but the poor women and subordinate characters are restricted to the use of Pracrit.

One of the most celebrated of the Mahratta writers was a Brahmin of Pytun, and follower of Vejai Pandoorung; his name was Eknaut, and he lived about the middle of the 16th century. The Brahmins of this temple preserve a written history of his life, the particulars of which are as follows. Eknaut was the son of a Brahmin of the place, and becoming an orphan at a very tender age was left under the protection of his father's parents. He early gave tokens of an intellectual turn of mind, which was turned to advantage by a miraculous voice from the temple commanding him to proceed to Deoghiri and there seek instructions from a holy man called Janardhun; so sedulously did he apply himself to study that he obtained the fullest approbation of his preceptor, who, to reward his industry, presented him to Duttatria, an incarnation of Vishnoo, who at once perceived in his own mind that Eknaut was an incarnation of Vittul, and intimated to Janardhun the divine nature of his pupil, assuring him at the same time that mankind were to acquire great happiness by his means. Janardhun, gratified with the intelligence, proceeded with his pupil to Sooria Coondo, in order that the ceremony of Anooshtan should be there performed; after which they repaired to Nassick Trinbuck Punchavuttee, where, under his preceptor's directions, Eknaut accomplished the meritorious work of translating a portion of the Bhagavut into Pracrit; master and pupil then returned to Deoghiri, and Eknaut was commanded to prepare himself for his destiny by visiting all the holy places of pilgrimage, and then to make choice of his native town as the site on which all his good works were to be displayed. Shortly after his arrival at Pytun he gave great offence to the whole community of Brahmins, through an infraction of the rules of caste, by persisting to invite Dhairs in common with the Brahmins to the annual feast on celebrating the ceremony to his parents' manes. Indignant at contamination, they refused to attend, which in no way annoyed the holy man; who, however, rather astonished the recusant Brahmins by exerting his divine power to summon their deceased ancestors in their places, a sight so startling that they tremblingly asked forgiveness, and at once confessed him an incarnation of the deity. The next event of his life refers to his benevolent disposition. A leper residing at Benares, horribly afflicted with disease, and getting worse rather than better for the remedies he had employed, after performing Anooshtan, was directed in a dream to proceed to Pytun and there seek assistance from Eknaut; he was further told that if he could prevail upon the holy Brahmin to grant him one of the two virtues he possessed he would be immediately restored to health; these virtues were the faculty by which the knowledge was acquired of translating holy books from a dead into a living tongue, and the degree of benevolence equal to that he possessed when on one occasion he buried the

corpse of an outcast. The narrative goes on to say that on the leper preferring these requests Eknaut asked one of his own disciples which of the two benefactions should be granted, and was answered, It would be better, because of less importance, granting him his benevolence ; but Eknaut smiling replied, No loss will happen by gifts, provided their nature be virtuous, in which case they return ten-fold increased to the donor ; so he immediately conferred both on the suppliant, who left his presence with a clean skin. The next story is preserved as confirmatory of his divine nature. A certain person in a far-distant country made an urgent appeal to Vishnoo for an interview, but unavailingly so, and at last was informed by means of a dream that the deity was absent serving the holy man Eknaut at Pytun, under the guise of a servant called Srikhund, and that if he desired an interview he must repair thither ; he accordingly in compliance with the vision visited Pytun, and somewhat astonished Eknaut by disclosing the circumstances of his journey, for it appears Eknaut had no conception of the honour he was enjoying. Srikhund, knowing his divine nature had been disclosed to his master, disappeared, but at the earnest entreaty of the holy man he consented to show himself and then finally departed. The stone which Srikhund used in grinding chunam for making the lines upon the forehead is now shown in the temple, as well as the large water-pot he daily filled from the river. Eknaut's works are highly spoken of, many of which are composed in ridicule of the gross superstitions of the day, and abounding in satire upon idolatry ; yet the manner of his death is an abnegation of these principles, for, far advanced in years, he departed from life in all the odour of sanctity by an act consecrated by the very worst description of superstition, drowning himself in the sight of the people in the middle of the Godavery. This event occurred in the year 1521, corresponding to 1598 A.D. A shrine upon the bank, north of the city, commemorates the circumstance, and yearly in the month of March a fair is held there. A substantial dhurrumsalla is attached to the shrine, and over the eastern gateway are the following inscriptions cut in stone in the Balbood character, translations of which are as follows :—

- No. 1.—Eknaut Swamy, being piously disposed, obtained the favour of his Gooroo Janardhun, by whose aid he advanced in knowledge, and clothed himself with the attributes of a divinity.
- No. 2.—Behold the deity, a saint transcendent in virtue, who by the nectar of Sri-Narrain obtained the favour of God.
- No. 3.—The pure streams of his fame are sufficient to wash out the sins of this Kalayoog, and his deep piety is like ambrosia to human beings ; were those void of wisdom and benevolence to seek acquaintance with his doctrine, they would attain to perfect beatitude.
- No. 4.—Illegible.
- No. 5.—As the deity Srikrishun Brama Charree, otherwise called Srikhundee, absented himself from heaven to serve Eknaut, it is an evidence of his divine nature.
- No. 6.—Illegible.
- No. 7.—The works that Eknaut performed are translations of the holy books Ramayen, Dushmushkund, and Rookineene Swayemwur, a labour meriting rewards.
- No. 8.—He also translated the holy book Yakadushkund, held in great estimation by the learned Brahmins of Benares, for which act of piety he obtained the gratitude of men.
- No. 9.—For his great piety he is universally known as the emblem of Brihasputtee. Maladies cease by the touch of his foot, and he is beneficent to all.
- No. 10.—Illegible.
- No. 11.—Those who daily read these praises of Eknaut would meet with prosperity, and be preserved by the deity Janardhun, who afflicts the wicked.

In an accompanying Appendix will be found a list of the whole of the religious buildings, both Hindoo and Mahomedan, none of which are of any note but the shrine of Moulana Mouza, a Mahomedan saint of great repute, whose good offices are more particularly in request for ventures at sea.

The Jains have a temple in the suburbs, containing the twenty-four Tirthankara, associated with one or two Brahminical deities. There are eight schools for instructing in Mahratta, at which 176 pupils attend; the schoolmasters receive a monthly stipend of about three rupees and a half; the number of persons able to read and write is 933, or very nearly a fourth of the male adult population.

Education.

Manufactures.

The chief manufactures of the town consist of woven silk and cotton fabrics, either alone or mixed. This trade was once in a flourishing condition, but has now dwindled down to a shadow of its former self, and is still further declining. The principal articles imported in 1847 are the following:—

Turbans of cotton material finished with a border of gold thread, the number of which was 18,291, and their declared value Rs. 1,28,835, as. 11.

Dooputtas.—A beautiful article of mixed manufacture, the warp being cotton. Elegant flower patterns and devices are wove in it with gold and silver thread and coloured silks, their individual value varying from 30 to 1,000 rupees; 3,042 were exported, their declared value amounting to Rs. 1,00,367, as. 4.

Shaloo.—Cotton cloths with gold thread borders, six and seven cubits long, and two and a half broad; number was 299, and their declared value Rs. 15,393.

Khun.—An article for female dress of mixed materials, with gold thread bordering; exported 197½, their declared value being Rs. 1,070, as. 1.

Davee Vustur.—An article manufactured from coarse silk materials, length about 8 cubits, and breadth about 2 cubits; used by Hindoos on occasions of religious ceremonies; 10 exported, declared value Rs. 136.

Gold and Silver Wire Thread.—6,427 tolas in weight, the declared value being Rs. 8,032, as. 13, pies 6.

The amount of labour employed in the looms, as nearly as I could ascertain, was as follows:—

The number of looms at work was about 700, engaged in the weaving of mixed goods and brocades; the weavers employed are Hindoos and Mahomedans, in about equal proportions, there being 573 of the latter to 507 of the former, or 1,080 altogether; the remuneration for a day's work is 4 annas.

The cloth weavers bear about the same proportion of Hindoos and Mahomedans, being 374 of the former to 363 of the latter. Their daily wages are about 4 annas.

In connection with the above fabrics other branches of industry are brought into operation, as the dyer and cleaner, Rashimkhurree: gold and silver thread spinner, Wulnair: tinsel manufacturer, Chupparia: and fine wire drawer, Tannia.

The dyeing employs 34 persons, all Hindoos with two exceptions; 147 gold and silver thread spinners, 116 Hindoos and 31 Mahomedans; 70 tinsel makers, all Hindoos; 162 fine wire drawers, amongst whom are 7 Mahomedans; and loom makers, all Hindoos. Having in a former report upon the city of Aurungabad entered fully into the occupations of these artificers, there will be no necessity for going further into details concerning them.

The marts at which the manufactured goods find a sale are Poona, Bombay, Surat, Baroda, Gwalior and Hyderabad.

I shall now proceed to describe the mode by which the preliminary operations of the manufacture of silk goods is performed, and have endeavoured to render the account more explicit by drawings accompanying the report. [*]

The raw silk is imported from Bombay in large hanks at about 12 rupees the seer. The process commences by placing a hank of this silk upon the "Rart" or large reel, whose periphery is nine feet and height three feet. It is provided with a sloping central spindle, the lower end working in a pivot on the ground, whilst the upper part turns within a socket in a piece of wood projecting from the wall; the workman, seated on the ground, proceeds to wind off the silk from the larger to a smaller reel, called the "Pursee," which he accomplishes by fixing one end of the silk to the small reel, and twirling it smartly round in one hand turns the large wheel in a contrary direction by the other, assisted by his toes.

[* For these, reference must be made to the *Madras Journal*.]

When the skeins are wound off, the silk is again transferred to bobbins or the "kous," which is made of a peculiar reed, hollow, and about four inches in length; the mode adopted for winding these bobbins is making use of a small wheel provided with an endless band passing over a cylinder in which an iron skewer or spindle is attached; on this spindle the bobbin is fixed, and the end of the silk being made fast to it from the reel, motion is given to the wheel, which, causing the bobbin to revolve, winds off the silk. The thread is now ready for fixing in the winding machine; this is composed of three separate portions—the wheel and endless band, the rack frame in which the bobbins are placed, and the long cylinder for winding.

The wheel has a circumference of twelve feet, and is turned by the hand; a cotton band passing over the axle gives motion to the cylinder on which the threads are wound, whilst a series of smaller bands passing round the circumference of the wheel and over the cylinders arranged horizontally in the bobbin rack sets the bobbins in motion.

The rack is formed of a framework about six feet long and three feet broad, having two outer longitudinal bars called the "Moondalla," and two inner ones termed the "Chowkala." It is arranged in a sloping direction and supported either by a long bar placed across its front or fixed between two low posts. The inner bars, the "Chowkala," are placed about six inches apart, and contain a series of wooden cylinders armed on either side with projecting iron skewers or spindles placed horizontally to each other, and on which the bobbins are fixed; a band from the outer surface of the larger wheel passing over these cylinders puts them in motion, as before observed. The outer bars, the "Moondalla," are provided with as many glass rings, or rather portions of broken bangles, as there are spindles, and through them the thread passes, to be wound off upon the winding roller above.

The long winding roller on which the threads eventually are wound is called the "Dhol," and is made of light framework a foot and a half in diameter, having twelve or eighteen sides. It is six feet long, and stands five from the ground; the axle on which it turns has generally one end working in a socket in the wall, whilst the other revolves in a similar manner in a stout wooden post. It is put in motion by a band passing round it and the axle of the large wheel; the ends of the silk thread wound on the bobbins having been attached are now gradually unwound by the traction of the revolving bobbins simultaneously set in motion by the same machinery.

The expense of a machine of this kind is Rs. 6, and of the smaller one for winding bobbins about Rs. 2.

Peeplewarrec.—A kusba town situated on the banks of a small mountain stream called the Wurra, six miles north of Pytun, on the Aurungabad road, and held in jaghir by Rungnath Balkishn; the face of the surrounding country is undulating with a stiff and loamy soil of no great depth; portions of land left fallow are quickly covered with babul bushes; average value of land to rent, from one rupee and a half to one rupee a beega.

Houses.—Mud brick walls and terraced or tiled roofs 121, Bunnya shops 2, males 407 and females 341.

Bhosa.—A market town, 10 miles north of Pytun, once apparently of large size and in prosperous circumstances, judging by the style of the ruins; at present it is nothing but a heap of dilapidated buildings, surrounded by mean-looking mud walls; within are seen two handsomely-built stone temples, dedicated to Mahadeo and Bhowany, partially destroyed and devoted to secular purposes by Dhairs; the sculpture about them is good. Amongst a heap of ruined sculpture at the entrance of the town is a handsomely-carved figure of a rhinoceros, which having seen one before in a similar condition at Gandapoor, I am induced to believe they adorned Jain temples, the rhinoceros being the sign of Sriyansa, the 11th Tirthanakur, a son of Vishnoo. The shrine of some Mahomedan saint at the entrance of the town has been constructed apparently with the materials derived from ruins of old temples. The land around the town is of fine quality, but three-fourths of the soils under it is of a sterile nature, lying close below the

hill, where little depth of surface exists. Land is valued from one rupee and a half to half a rupee a beega.

Houses.—Brick walls and terraced roof 1, mud brick walls and tiled or terraced roofs 77, mud walls and thatched roofs 20, Bunnya shops 5, males 356, females 350.

Uddool Burra.—A thriving town, 22 miles north-east from Pytun, and situated on the banks of a nulla, dry in the hot seasons. It is surrounded by a good wall, and has the air within of a considerable degree of comfort; outside, both upon the east and west, are seen the ruins of ancient Hindoo buildings, that have been destroyed or allowed to fall to decay; the carvings are good in both instances. A handsome temple of Hunnooman has been lately built at the entrance of the town upon the east, and well endowed by lands for its support.

There is a Mahratta school, at which 25 pupils attend; the pay of the schoolmaster is Rs. 4 a month.

The soil is particularly good and well supplied with water from the hills. Land rents on an average from two rupees to a rupee and a half a beega.

Houses.—Mud brick walls and tiled or terraced roofs 87, mud walls and thatched roofs 75, Bunnya shops 16, males 369, females 227.

Sownkhaira.—A town of former note and importance, but at the present day bears the mark of extreme poverty and neglect about its half-ruined walls and buildings. It is pleasantly situated on high ground upon the left bank of the Godavery, 18 miles westward of Pytun. In common with many towns upon this river, it enjoys a reputation, amongst good Hindoos, of much sanctity; the remains of many temples, sacred shrines, and muths are to be seen outside its walls, and upon the banks of the river. The foundations of temples are seen upon the north apparently destroyed by violence, but others to the south seem falling to decay through sheer neglect; a very beautiful small temple of Mahadeo and Gunputtee, of a comparatively modern date, is amongst the best of those remaining. The country around is flat and uninteresting, growing principally wheat, bajree, and jowarree; the land is valued at about a rupee and a half per beega.

Brick houses.—One story 5, brick wall and tiled or terraced roofs 42, mud walls and tiled roofs 14, mud walls and thatched roofs 30, Bunnya shops 10, males 302, females 261.

Lohogaon.—Situated 10 miles from Pytun. Houses: mud brick walls and tiled roofs 66, mud walls and thatched roofs 25, Bunnya shops 2, males 256, females 244.

Saindoorwarra.—The kusba town of the purgunna, and situated 16 miles north-west of Pytun, upon the right bank of the Gunda river. It is a well-built town, with a handsome stone ghaut. The streets within are exceedingly filthy, and swarm with swine. There is a weekly market every Wednesday, and a large fair in December for cloth and grain. All the villages of this purgunna are of little note. Surrounding country is undulating; land principally occupied with wheat, bajree, and jowaree, renting from one rupee to two rupees and a quarter a beega.

Houses.—Brick with one story 12, mud brick walls and tiled roofs 161, mud walls and thatched roofs 33, Bunnya shops 26, males 843, females 353.

Dhawurwarree, the kusba town of the purgunna, lies ten miles northward of Pytun, on the banks of a mountain stream upon the highroad from Jaulna to Ahmednuggur. This town, as well as the whole of the villages under it, is in a dilapidated condition. The records of the purgunna are kept at Nandoor for better security.

Houses.—Mud brick walls and tiled or terraced roofs 45, mud walls and thatched roofs 61, Bunnya shops 9, males 338, and females 267.

Population.

The census from actual ascertainments obtained and returned by the Putwarees from each village throughout the Circar amounts to 32,015, in which are included the inhabitants of the city of Pytun, alone computed at 11,572. In many portions of the district large tracts of land are lying waste and barren, and

PHYSICAL FEATURES AND NATURAL PHENOMENA.

consequently uninhabitable; in calculating the ratio of the population to the square mile, so that the relative degree of density may be correctly ascertained, it will be necessary therefore to exclude from the statement the amount of surface so situated, which in this instance amounts to 1,32,970 beegas, or upwards of 95 square British miles.

The distribution of the population will therefore be 77 inhabitants to the square mile generally, or 101 to the square mile of inhabitable surface.

It must be observed that the above-mentioned computation does not comprehend the alienated estates held by Scindiah, equal to about a thirteenth of the whole area, so that when the returns are procured from these jaghirs the rate of inhabitants to the mile will be considerably increased, judging from a general view, which showed them enjoying far more prosperous circumstances than the Khalsa villages around.

Where no registers of births, marriages or burials exist, the probable increase or decline of population must rest solely on conjectural grounds. On traversing the district, numerous evidences appeared conclusive as to some past period when the numerical strength of the inhabitants had been far greater than at present; out of 152 villages composing the Circar there are 34 depopulated; whilst the industry of those unbroken remains far below their former amount of tillage and manufactures; six villages have been without inhabitants for upwards of one hundred years, and two for twice that period; those remaining unpopulated date generally from the unquiet times that ushered in the present century, when famine and pestilence consummated the dire evils that had previously been inflicted by roving bands of freebooters, the effects of these calamities remaining to the present day.

The industry of the population is chiefly employed in tillage; manufactures are far too insignificant to interfere with the term agricultural being specially applied to their employment. The silk weaving trade once flourished prosperously at Pytun, but that has long been declining, and throughout the districts no goods are manufactured but of the coarsest description, for home consumption. Throughout India generally the people are daily becoming more and more agricultural in their habits, the native hand loom having been superseded by the fabrics of Glasgow and Manchester; under these circumstances one of two things naturally ensues—either production exceeds consumption, or lands fall out of cultivation; the remedy against such a contingency is provided for by conferring on the country the advantages of disposing of its produce by opening up in every direction good roads of such a description that carts may travel in all seasons. At present produce will not pay at the exorbitant cost of taking it to market on the backs of bullocks; the wisdom of the measure now in active operation, of carrying a line of roads throughout His Highness's dominions, will do on a small scale for the country what railways have effected in America on a more extended one; an improving revenue will speedily repay the outlay of the undertaking, whilst the natives of the country in the increase of agricultural produce will be compensated for the loss they have sustained in the decay of their commerce.

An analysis of the population, calculated from the number of families, was found as follows:—

CIRCAR OF PYTUN.	DIVISION OF POPULATION.				
	Brahmins.	Rajpoots.	Shoodrahs, including Koonbees.	Ate Shoodrahs or Low-Castes.	Mussulmans.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
	9.106	2.013	63.079	10.035	13.095

The result of this table shows that the working classes are the great bulk of the community, and of this section of society the Koonbees alone represent two-thirds of it ; in like manner amongst the low-castes, the Dhairs exceed half the gross amount, whilst the Mangs rise nearly to a fourth.

The proportion of individuals to each family is about 3, the number of families being estimated at 10,951, and the number of individuals to each house is slightly in excess of 5.

By a reference to the general statement it will be observed that the proportion between the sexes shows a disparity in the number of males to females in every hundred as 52·60 of the former to 47·40 of the latter.

Mahomedans are computed at a seventh of the population, which is an increase upon what was exhibited in the Doulutabad Circar, and we observe here also a large number applying themselves to industrial occupations, both in the fields and at handicrafts.

The Brahmins are rather numerous, nearly doubling the proportion noticed in the Doulutabad Circar ; they are principally to be found at the city of Pytun.

The Rajpoots appear in the same proportions as in the Doulutabad Circar ; they are descendants of the mercenaries of the imperial armies of Delhi, though at the present day the high bearing of their ancient race has merged into, and is not to be distinguished from, the inoffensive and unpretending Mahratta cultivators.

The low-castes form a tenth of the community, of which the Dhairs number above half, and the Mangs about a fourth ; in this Circar very few Bheels are located, their duties as village watchmen being provided for by Mangs and Dhairs ; amongst the lower classes may be noticed a tribe of religious mendicants peculiar to this part of India, called Mangbhows, the founder of which resided at Pytun, and having nowhere seen any published notice of these singular people I have been induced to give a few particulars of their origin, obtained from an account written by a learned Brahmin who lived at Pytun in the time of Krishun Bhut, the founder of the sect, who is represented as having been the Gooroo to the Raja Depal of Bramapoorée Pratishtan, the former name for Pytun, when Ramdeo Raja reigned at Deoghiri A.D. 1333.

The Gooroo rendered himself an object of execration to the community of Brahmins, by the discovery of a criminal connection he had formed with a Mangnee named Deokee, the daughter of the Rajah's sweeper, the penalty for an offence of such magnitude being nothing short of expulsion from caste ; this was done, in addition to which every species of indignity was heaped upon his head, and he was driven forth from the city an outcaste, bereft of the sympathies of all save her for whom he had forfeited every social and civil right ; in company with the Mangnee, he then proceeded to the village of Domegrah, where he took up his abode for some years, and had five sons born to him in this period. Krishun Bhut appear to have been a person of considerable talent and determination, in so much as so far from sinking under the grievous curse of civil excommunication he rose above its consequences, and, defying the malice of the Brahmins, promulgated a religious system of his own, which he disseminated far and wide by means of his five sons, now grown up. His doctrines repudiated a multiplicity of gods, and it is more than probable that the hatred and contempt he endured arose not so much from his illicit intercourse with the outcaste's daughter as his offence towards the priesthood in endeavouring to restore the monotheistic principle of Brahmanism, as taught in the Vedas ; be this as it may, he inculcated the exclusive worship of Krishna, taught them to eat with none but the initiated, to break all former ties of caste and religion, and forsaking a secular life to embrace one of mendicancy and exclusion ; in all these particulars we trace a striking resemblance to the sect of Gosaces, as described by Mr. Ward, with this difference, that though the Gosaces devote themselves entirely to Krishna they admit at the same time the whole mythology, whilst the Mangbhows are ordered to cast the gods of their fathers into the waters and never more offer worship to them.

This reforming outcaste gave the name of Mangbhow to his children from the circumstance of the blood of a Brahmin and Mang mingling together in their veins ;

their names were Krishna Bhut, Duttiah, Changiah, Goondum, and Parsea, who were severally sent abroad, on gaining man's estate, to procure proselytes to their father's apostasy. Krishna was directed to proceed to Dwarka in Kattywar, Changiah to the confluence of the Tapti and Nurbudda, Goondum to Reedpoor in Berar, Duttiah to Mahor, and Parsea to Punchulseer, a sacred shrine near Bheer, upon the Godavery. At these several places fairs are held annually and are numerous attended by the followers of Krishun Bhut, and in their vicinities are seen their temples, which are all devoted to Krishna, and distinguished by a pennon, placed upon the walls, of white and red in horizontal stripes, which flag they also often fix upon their dwellings. The offerings made to the deity are fruits, ghee, milk, betel nuts, cocoanuts, dates and frankincense. Before Krishun sent his sons forth upon their mission he shaved off their whiskers and moustaches, in commemoration of his own disgrace, and gave to each a black cloth to wear, a wallet for their food, and a staff which was to be carried reversed in the hand; their mother in like manner was clad in black garments, and her hair shorn from her head; to the present day those portions of the sect who devote themselves to a life of poverty and mendicity (for there are some who follow secular pursuits) assume this guise, in honour of their common founder; large bodies of this sect are often met in Berar, travelling about to their different fairs, presenting a most singular spectacle clad in their sable habiliments, the effect of which causes no slight sensation amongst the simple-minded peasantry, who have been taught by the Brahmins to regard them in the light of an accursed race, and familiar with all the mysteries of the occult art, a reputation they are by no means backward in assuming, as they well know its value in working on the sympathies of their fellow-creatures; they are not very numerous in the Circar, but are scattered pretty largely over Berar. They have head men or Gooroos, located in certain districts, some of whom are well provided for by their followers, as the one at Reedpoor in particular, who possesses camels, a horse, and palkee; when these leaders die the spot in which they are buried becomes the abode of one of the mendicants. Proselytes are made chiefly from among the Koonbees. The Mangbhows are a quiet, inoffensive tribe, unlike the Gosaees in this respect, who are, on the contrary, often turbulent and insolent. They eat nothing that has had life, subsisting solely on grain, pulse, and vegetables. Their only beverage is water. They have two or three wives as they please; what their ceremonies of marriage were I could not learn; when they die they are not burnt but buried, and placed in the earth with the head to the north; no tomb or stone marks their graves.

Condition of the Koonbees.

If it were possible to obtain an insight into the past history of the Hindoos it is more than probable the condition of the Koonbees would be found little differing from what it is at the present day; this inference is drawn from the spirit of their laws and institutions, which consign them to the most intolerable thralldom both of mind and body, to perpetuate which it has been the policy of a heartless priesthood to keep their minds rude and ignorant; in addition to which they have ever been oppressed by despotism, a circumstance which Adam Smith has most justly remarked is "more destructive of leisure and security, and more adverse to the progress of the human mind, than anarchy;" too sadly is the truth of these observations exemplified in the present case, where such little advances towards civilization have been effected; confining my remarks, for the present, merely to such as are of a general nature, I would state that the experience of my intercourse amongst them goes to prove their possessing the elements of much of what is most praiseworthy. Their occupations have engendered a peaceful and mild temperament, patiently enduring to the utmost limits their hard fate, and only resenting harshness when pushed beyond human endurance; they are cheerful in disposition, and kind and affectionate to their wives and children; temperate in diet and frugal, even to parsimony; should a little hoard be made, from the insecure state of property, it is all squandered at once in feasts or marriages. The bigotry of the Brahmins kept all instructions from them, but

they are not wanting for intelligence, answering pertinently, and explaining rationally, all matters connected with their calling; the contradictions in their character arise in a great measure from the defective nature of the financial system, its indefinite and uncertain assessments being met by cunning and falsehood on their part.

The dwellings of the Koonbees are comparatively comfortable and convenient, the average dimensions being about thirty feet long by twenty in breadth, with walls five feet high, and formed of sunburnt bricks, having square ends, with mud terraced roofs, or gable ends, and tiled or thatched roofs. The doorway is four feet high and three feet broad. Altogether a building of this sort might cost about 20 rupees, and with occasional repairing would last about ten or fifteen years.

The confined circumstances of the Koonbee prevent his indulging in many domestic comforts; his household requirements are indeed comprehended in as low a scale of social well-being as it is possible to be conceived, the total value of which will be found not exceeding seven or eight rupees. They are as follows:—a stone handmill for grinding flour, formed by two round stones placed one upon another, the nethermost having a peg in its centre adapted to a hole in the middle of the upper stone, which is turned round by a handle fixed in it; it costs one rupee;—a brass plate or thalee, costs one rupee; a brass kutoree or dish, costs half a rupee; a brass lota, three-quarters of a rupee; one iron tawa, or griddle, for baking bread, four annas; an iron spoon, two annas; an axe, half a rupee; a sickle, half a rupee; a koorpee for weeding, two annas; a variety of earthen and glazed pots, for various domestic purposes, two which are of large size, for holding grain, the whole costing two rupees; a topla or bamboo basket, containing two maunds, one rupee earthen lamps, one piece a dozen; a sleeping bedstead with rope lacing, half a rupee. If the Koonbee cultivates ground on his own account enough to employ one plough, his expenses would be increased by the purchase of three pair of oxen, say 50 rupees, a plough Rs. 2-8-0, bukkur — rupees, and a drill plough 2 rupees; he would probably be obliged to hire the services of a man to assist, for which he would have to give 8 or 10 rupees yearly, besides subsistence and clothing, this consisting of one maund of grain monthly, and 2 pair of shoes, 1 kumblee, 1 dhotee, 1 chelna, and 2 lunghotees yearly; seed sufficient for one plough would cost about Rs. 12; to this must be added sundry incidental expenses to which he may be liable, as the death of a bullock, the price of which varies from 10 to 15 rupees; celebrating the marriage of a son, varying with his circumstances from 50 to 200 rupees, the expense attending that of a daughter's being but half this amount; and five or six rupees in fees to Brahmmins, &c., on a death, &c., occurring in the family.

The Koonbee's ideas and habits have never reached a point beyond providing the mere necessities of life, and these two consisting generally of the very coarsest kind; by the daily expense incurred for food we may see at how very small a sum they are enabled to sustain life: the standard of living is indeed very low, and in bad seasons, having nothing further to fall back upon, they are exposed to great distress, if not utter destitution.

The ordinary daily food consists of bajree or jowarree flour kneaded with water into cakes and baked in a griddle over the fire; garlic, onions, and chillies are made into chetnee with salt, and eaten with them; several species of pulse occasionally vary the diet, prepared whole, or ground into flour for porridge, as dhall, gram, toor, moong and mussoor, and seasoned with chetnee, or mixed with oil, or ghee and salt; it is very rarely flesh is tasted, but when such an indulgence occurs some superannuated lean goat provides the feast, and his flesh is cut up, and fried with oil or ghee; the product of the dairy, forming a source of profit from which their few wants are supplied, does not enter into their daily food.

The hours of taking food are 8 A.M., when jowarree or bajree cakes with chetnee are eaten with the cold remains of yesterday's fare; at noon labour is suspended and the wife or child brings dinner to the field, where the meal is eaten, and is composed of the same kind of cakes as formed the morning's repast.

having boiled grains of pulse and vegetables placed between them ; at 8 P.M. the supper is eaten at home, consisting of some sorts of porridge, made from the various kinds of pulse or Indian corn ; though intoxicating drinks are not prohibited by their customs, they invariably use water as beverage, and are never seen intoxicated. Tobacco is but moderately employed, and smoked by rolling up a portion in a leaf of the pulas tree, thereby making a very simple and convenient pipe ; the number of people addicted to opium is considerable.

The annual cost for food for a Koonbee, supposing he had to purchase all he consumed, would be as follows :—

The quantity of grain he eats daily is about one seer (32 ounces avoirdupois) or 9 maunds yearly, the cost of which would be Rs. 7-8-0 ; $\frac{3}{4}$ of a seer of salt monthly would cost 2 pice, with about 15 pice for tobacco and vegetable ; altogether bringing his yearly expense for food up to about 12 rupees.

The clothing in daily use is very slight, and consists of nothing but a waist-cloth, turban, and black blanket, which latter article is made to serve a variety of purposes ; the holiday costume is respectable, and though of coarse materials has a comfortable appearance ; it consists of an angurka or frock of coarse white cloth, lasts a year and costs half a rupee ; a cholna or a pair of drawers made of the same coarse material drawn tight at the knee, reaching halfway down the calf, lasts for six months, value half a rupee ; a dhotee or coarse waistcloth, lasts six months, and costs one rupee ; a jote or cloth carried over the shoulders, and made useful for carrying articles, lasts one year, value one rupee ; a lunghotee, worn for six months, and costs 8 pies ; renewing a pair of shoes or sandals, worn for six months, value one rupee ; one kumblee or black blanket, renewed every year, costing from 12 annas to a rupee ; a turban lasts six months, value from one to three rupees ; ornaments of gold and silver of any value are never seen, such as are worn being of the baser metals or of glass ; if by chance the Koonbee's prospects be brightened it would only serve to excite the cupidity of his superiors by ostentatious display ; what can be saved from the Mamlutdar is generally squandered in the absurd extravagance of marriage and festivals. The expense of a year's clothing would appear therefore amounting to about 8 or 9 rupees.

It is remarkable that though Pytun was once the capital of the Buddhist monarch Salivahan, not a vestige of such a faith remains in the neighbourhood, excepting indeed in the caves of the adjoining Circar of Doulutabad ; of the Jain faith that succeeded there are now but two temples, one at Pytun, and the other at Kusnair. The oldest temples in the Circar are those dedicated to Mahadeo, some of which are supposed by the inhabitants to have been erected by Ahmud Punt, the minister of Ramjee Raja of Deogiri, who according to the Mackenzie Manuscripts reigned 500 years before the Christian era ; but though not of that remote date they still are very ancient. Those dedicated to Vishnoo are of much more modern time than those of Mahadeo, and are principally his incarnations of Vitul, Vithoba, and Ballajee ; Kifundoba and Masoba are favourite deities on the hills, and the monkey god, Maruti and Gunputtee, are everywhere ; occasionally temples are dedicated to the various personifications of Bhowanee, and very generally throughout the province are to be seen the tutelary gods of the fields and homesteads, called Pandoo, represented by five upright stones, smeared with red lead and oil, occupying a prominent spot in the fields.

The daughter of a cultivator is married at about 12 years of age, the son at about the same age, or older through want of means to provide the expense attending the ceremony ; this varies for one in middling circumstances from twenty to fifty rupees, whilst the richer Koonbees will expend from three to five hundred rupees, the amount incurred by a son's marriage always doubling a daughter's. Lucky and unlucky days have much to do in adjusting the period for making these contracts ; no marriage, no giving in marriage, takes place amongst good Hindoos during the year called Singust, which occurs every twelve years, the assigned reason of which being

that at that period the river Bhagiruttee is supposed to pay a visit to the Godavery, and all Hindoos are then expected and required to repair to the banks of the Godavery, and practise ceremonies similar to those usually performed at funerals, shaving their beards and mustachios, &c., and, as times of mourning are not consistent with revelry and feasting, the two are never mixed up together. The Brahmins, however, have made the penance bearable, by mixing up with it the following year called Kurk, so that four months of one alternate with four months of the other, and that in those of Kurk it is feasible to marry—a pardonable piece of sophistry on the Brahmin's part. This rule extends as far south as the Krishna, beyond which it has no effect; how far north my informants, who were Brahmins, do not know, but believe to the Ganges. In times of plenty succeeding a scarcity, such as occurred in 1847, marriages are very numerous. Widows do not marry otherwise than by Paut.

The attempt at obtaining trustworthy returns of diseases and deaths has proved a total failure, and is therefore abandoned. There does not appear any very great variety of fatal disease. Deaths occur oftener in childhood, from a variety of causes, bad management and small-pox being the principal ones; it is much to be regretted that the benefits of vaccination are not extended throughout the districts, where small-pox annually sweeps away its thousands; this year was one of remarkable mortality from this disease. In the rains bowel complaints prevail, induced by the green diet then abundantly procurable, as well as from insufficient clothing at the close of the monsoon and commencement of the cold weather; fevers abound as usual throughout India, but not generally of a fatal nature. Cutaneous disorders are common, the worst description of which are seen afflicting the most wretched in the loathsome forms of leprosy, elephantiasis being the variety more frequently met with; whilst that species confining itself to mere discoloration of the skin is less observed than those attended with a swollen and ulcerous condition of the extremities. The cause of this disgusting malady may be attributed in some measure to the diet of the country, which consists principally of jowaree, bajree, grains deficient in that amount of gluten which constitutes the nourishing qualities of other cerealia; a cause like this, associated with poverty and destitution, has been considered sufficient in other countries,* whose peasantry are in similar circumstances, to have developed like epidemic affections of the skin.

Slavery exists but to no great extent, confining itself to a few domestic servants and to public women. In the first instance a reciprocal feeling to the advantage of both exists, the one zealously serving the other in return for being cherished and protected, making the odious custom repulsive in nothing but its name; in the other instance the case is far different, and the inhuman practice is viewed in all its deformity, girls being sold to slavery for the abhorrent purposes of lust and avarice, and leading a wretched life with few exceptions. The source of this moral degradation lies in those calamitous accidents of dearth that so often distress the country, when the starving wretches sell their offspring to those able to nourish and support them; when such a sad alternative becomes inevitable, the parties proceed to the Cutwal's office and there declare their determination; a deed of purchase is then made out and duly registered, the purchaser paying duty to Government on the sale, as for any other marketable produce. In the year 1847 considerable want was felt amongst the poorer classes, and the sale of eight slaves is registered at Pytun, the individual value of whom was Rs. 33-6, the duty paid was Rs. 68 on the whole.

Tenure.

As far as I can understand, the true Meerasdar has entirely disappeared from these districts, or at all events, if in existence, his prerogatives are inoperative, as there is no class of cultivator found possessing distinctive rights such as were claimed by persons holding lands under this particular tenure in former days.

The forms of tenures usually granted are either on a written lease in which

the tenant enters into an undertaking for the current year called Toka, subjected to certain arbitrary imposts ; or by a lease for a specified definite period, by which an agreement is entered into to cultivate a certain amount of land for a certain number of years, the yearly rent of which rises with each successive year, until it reaches its maximum in the last, the cultivator being subject to certain payments, varying according to particular agreements or local customs.

The former tenure is called Toka, and the latter Istawah.

Under the first variety the mode generally followed is for the person contracting for the revenue to obtain the highest possible amount of rent short of actually driving land out of cultivation, and from the love the cultivator bears his fields his forbearance has to be tried severely before he abandons them ; under so vague a tenure, which is governed solely by the wants and necessities of the contractor, it is useless expecting improvement in the cultivator's condition ; differences are for ever arising in the struggle of one party trying to outwit the other, in the course of which both are generally so much in the wrong that it is often difficult to say who is most to blame ; attempts at fraud and exaction are met on the part of the cultivators by duplicity and cunning, a recourse often proving very successful in their hands ; to meet the payments of their kists they resort to the moneylender, or sell their produce at a disadvantage ; under these depressing circumstances the cultivator labours on with listless apathy, his husbandry is slovenly performed, and he soon loses all his self-respect by finding himself inextricably involved in debt, by the purchase of cattle, seed, and the bare means of subsistence.

Revenue.

The system of finance is based directly upon the tax or rent realized from granting permission to cultivate the soil, and indirectly from a variety of intricate demands in the shape of imposts derived from customs, transit, and excise duties, that would appear to have been multiplied in the most intricate manner for no other purpose than creating confusion, facilitating frauds, and subjecting commerce to many grievous exactions.

The principal indirect payments required from the cultivators are included under the following heads :—Mohturfa, house and shop tax ; the Sayer, or general internal duties ; revenue obtained from farming the sale of arrack and toddy revenue from grazing cattle, drawn from the Brinjarees and others, the cultivators themselves enjoying the benefit of common pasture ; fines, principally for the offence of smuggling, and presents or fees as nuzuranee to the Circar and public officers ; besides these there are a variety of Sayer which are not brought on the register of the revenue.

Under the head of Sewai jumma are considered certain extra imposts levied on both trader and cultivators ; to examine the rules by which such were levied would serve no useful purpose, and I proceed therefore to enumerate such as have fallen under notice.

IMPOSTS AFFECTING CULTIVATORS.

Adola.—A levy upon the Dhairs for their lands.

Enam Puttee.—Occasional levy on Enamdars.

IMPOSTS AFFECTING TRADERS.

Bazar Beitukh.—A tax on stalls at fairs, and shops in villages.

Koomar Puttee.—A tax on clay used by the potters.

Adan Puttee.—Personal tax formerly levied as a poll tax on the Hindoos, but now paid as a professional one by Hindoo artizans.

Bhys Puttee.—Tax on buffaloes, at the rate of two annas a month per head.

Nakush.—Tax on the sale of animals : two dubboo pysa is taken from Hindoos and one from Mahomedans on the sale of all animals except sheep and goats ; besides which, 26 dubboo pysa have to be paid to the Chowkee, and 16 dubboo pysa for the Moharana, or certificate of sale.

Amul.—A tax for slaughtering animals, the butcher paying three-quarters of a pysa, and the ryots one and a half, for sheep and goats, for bullocks and cows five pysa.

Mootfurk kat.—Tax on sale of gunpowder, alum, rope, hides, oil cakes, ghee, honey, &c.

Jurreemana.—Fines and offences.

Buncherrai.—Tax for grazing cattle on Circar lands.

Falees.—Tax on melon beds, from 2½ to 4 rupees per beega.

Jastee Puttee.—Occasional extra imports.

GENERAL IMPORTS.

Gondul.—Tax of one rupee and a quarter for permission to beat drums through the night.

Paut dauma.—Tax of Rs. 14 on the remarriage of widows.

DUTIES LEVIED IN THE CITY OF PYTUN.

Kullalee.—The abkaree contract is farmed by one individual, who pays Rs. 1,165 for the privilege, the Mohtsib or clerk of the bazar receiving a fee of 9 rupees.

Myne Mahal.—A monthly tax levied on all shopkeepers.

Amla.—A tax on the sale of old buildings, at the rate of 10 annas upon every khun of wall, which is about the length of seven feet and a half.

Dace.—A sum of Rs. 25 levied for the privilege of acting as a midwife.

Pyana.—A tax of Rs. 8-8 levied as ground rent for the sites of houses.

Purnalla.—A tax of Rs. 1-10 levied on gutters and watercourses.

Khirkee.—A tax of Rs. 2-8 on new windows.

Dharce.—A tax of Re. 1 for making chimneys.

Jharakurree.—A tax on persons who purchase the sweepings from the goldsmith's furnace.

Jeereemana.—Fines levied for smuggling and other offences.

Nuzzuranee.—Customary presents made by shopkeepers to officers of the revenue.

Mohtsib.—Levies made on imports and exports and city customs for the benefit of the Mohtsibwala, or clerk of the bazar, whose peculiar duties are to regulate the Nerrick, &c.

Transit duties are collected at the boundaries of each purgunna, a proceeding fraught with much vexation to the trader, and easily obviated were the system in force of employing Hoondeekurrees, who upon being paid take upon themselves to settle with the farmer of the customs for the payment of all dues throughout the route.

Free lands granted by the Circar, as Enams and Jaghirs, have the amount of their revenue guided by the same record of assessment that regulates the collection of revenue. Besides these assignments on the revenue, it is still further made chargeable with providing for the Gaon khurch, under which item is comprehended the expenses of the district and village officers, and the several fees and perquisites of hukdars; besides which, there are also various contributions, both in money and kind, levied by authority for charitable and religious purposes, independent of grants for this purpose.

The gross amount of revenue in this province is Rs. 1,05,898-10-9; of this Rs. 70,618-7-6 is appropriated, and Rs. 13,870-10-3 alienated; whilst the deduction for the Gaon khurch amounts to Rs. 21,404-9-0.

System of Revenue.

The ancient hereditary officers of finance have their functions now entirely set aside by the system that has long obtained of farming the revenues; but, notwithstanding this, they still retain the same peculiar advantages and privileges they would have enjoyed had such not been the case; these officers are the Deshmooks, who are responsible to the State for the internal economy of the purgunnah over which they are appointed, and are the instruments through whom its orders are executed; under them are the Surdeshpandee, Deshpandee, and Morrel.

The office of Deshmook to all the three purgunnahs of this Circar is held by one individual, the Rajah Jaddhow Row, his fees of office are generally a levy on each village of 3½ per cent. on the revenue, and a further contribution of Rs. 5— in some instances having a provision also in free land in addition, or the whole may be commuted for by a certain fixed sum.

The Deshpandee is the accountant and clerk to the Deshmook. There are three employed for the purgunnah of Pytun, whilst the Rajah Jaddhow performs the duties of Deshpandee and Morrel to the remaining two purgunnahs, as well as Deshmook. In former days there were but two in Pytun, equally sharing the fees, called the Baolee Deshpandee and the Aurkari Deshpandee, but quarrelling between themselves.

the Peishwa deprived the Baoli Deshpandee of half of his huks, and appropriated them to himself, appointing a third party called Srimunt Deshpandee, which office is now held by Rajah Ray Raya, having been presented to him by the Circar.

The pay is usually $2\frac{1}{2}$ rupees per cent. on the revenue collection, with a contribution of Rs. 5 from each village; occasionally having Enam lands as well, sometimes remunerated by free lands alone or fixed money payments.

The Surdeshpandee's duty is to examine and sign all papers belonging to the Deshpandees; there is but one officer in the Circar appointed to this duty, the Rajah Ray Raya; his fees are generally one rupee per cent. on the collection of revenue, and one rupee contribution from villages; but, like the other revenue officers, these are occasionally commuted into a modus.

The Morrel is clerk to the Deshpandee, but the allowances attached to the office are drawn and appropriated by the Deshpandees; the sum generally contributed to this individual by each village is Rs. 4.

The Mamlutdar, or Collector, is the officer under whom all financial arrangements are conducted, and he obtains his appointment by public competition, the revenues of the State being put up to auction. Beyond presenting a greater field for abuses, the present system adopted differs but very slightly from the old method.

Patel.—Appointed to his office by grant from the State, which together with its emoluments are hereditary; these he has the power of letting wholly or in part. The Patel is generally of the Soodrah caste, some few being Brahmins and Mahomedans. The duties he has to perform are most important; the principal ones are to arrange the revenue assessment of his village, and look after its police, being aided by the Dhairs and Mhars in administering justice, the services of whom are at his disposal. He is entitled to land and fees, with many privileges and honours, the possession of which he greatly prides himself upon; the following are amongst the principal fees of the office:—

Googree.—Fees on grain, varying in different villages, being either one pysa on each pulla of grain, or a stated quantity, say from 12 to 24 seers for every khundee, in addition to a pysa on every pulla exported; to these grain fees are frequently added grants of free lands.

Sirpow.—Present from the State on paying the revenue.

Karree pendee.—Certain quantities of bundles of cut grain from every chahoor, differing in amount in each village.

Hooldee, Nemboor, Wombee.—Fees of unripe grains of jowarree, bajree, and wheat.

Seyo.—Fees of vegetables and garden products.

Tel-ochra.—Oil gifts from the oilman.

Sadee Cholee.—Gifts of cloth from weavers.

Dhungurkumlee.—Gifts of kumblied from shepherds.

Putwarree.—The village accountant and record keeper, performing the same duties to the Patel as the Deshpandee does to the Deshmook: this is always a Brahmin. The public documents in the Putwarree's possession present perfect statistical records of the village lands, containing as they do the complete standard of assessment, which was commenced by Moorshed Koolikhan in 1654, on the principle of Tudur Mull's original rent roll of Hindoostan, and finished in 1687 by the Emperor Aurungzebe; in them may be found the general measurement and description of lands, list of fields, and every particular connected with them as to size, quality and rent, muster rolls of the inhabitants, revenue payments, and detailed accounts of its management. Besides these duties to the State, the Putwarree acts as the public notary to the village. He has fees allotted him by the State, with grants in land and grain rights, his dues varying in every village.

Dhairs.—These people have many duties to perform both to the State and community; to them are entrusted the care of the village boundaries, and limits of fields, watching the crops, and they are the public messengers and guides; their fees are trifling,—grain dues from the villagers, with occasional grants in land. The Mangs and Bheels are paid in a similar manner by contributions from the inhabitants in land grants and grain dues; in return for which they perform watch and ward, and protect the property of travellers and fields.

W. H. BRADLEY, Surgeon,
On Special Duty.

W. H. BRADLEY, Surgeon,
On Special Duty.

[illegible]

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Table showing the Quantity of Live and Dead Stock in the Purgunnah of Pytun.

1	2	3	4	5	6
	Designation.	Individual Value.	Quantity.	Value.	REMARKS.
Live Stock.	Bullocks.....	Rs. a. p. 7 7 5	6,358	Rs. a. p. 47,453 3 2	
	Cows	5 12 9	4,765	27,622 1 9	
	Calves.....		2,978		
	He-Bufferoes.....	6 4 8	70	440 6 8	
	She-Bufferoes	12 1 9	1,197	14,494 14 9	
	Calves.....		584		
	Total...	.....	.....	90,010 10 4	
	Sheep	0 10 8	6,790	4,526 10 8	
	Goats	0 10 6	4,161	2,730 10 6	
	Total...	.....	.....	7,257 5 2	
Dead Stock.	Horses	106 10 8	25	2,666 10 8	
	Tattoos	10 11 6	559	5,991 12 6	
	Colts		86		
	Asses	9 10 3	288	2,776 8 0	
	Fowls	0 3 2	494	97 12 4	
	Total...	.....	.....	11,532 11 6	
	Ploughs	2 8 0	1,002	2,505 0 0	
	Bukkur	3 8 0	2,551	8,928 8 0	
	Carts	20 0 8	395	7,916 7 4	
	Mhotes	4 10 0	209	966 10 0	
	Sugar Mills	12 4 0	5	63 0 0	
	Oil Mills	7 9 9	64	487 0 0	
	Sugar Boilers	18 13 4	5	94 2 8	
	Total...	.....	.....	20,960 12 0	
	Grand Total...	.....	.....	1,29,761 7 0	

Table showing the Amount of Principal Vegetable Produce, its Value, and Quantity of Land cultivated, in the Purgunnah of Pytun for 1846-47.

1	2			3			4	5
Designation.	Quantity of Land.			Quantity of Produce.			Value of Produce.	REMARKS.
	Beghas.	Pande.	V.	Pullas.	Maunds.	Seers.	Rs. a. p.	
Sugarcane	36	10	0	50	1	20	853 12 3	
Wheat	5,709	0	0	744	0	0	3,534 0 0	
Bajree	20,446	3	0	6,492	0	0	17,886 13 0	
Jowaree	37,715	15	0	13,888	2	0	31,754 5 4	
Ooreed	6	0	0	1	0	0	5 0 0	
Gram	3,575	18	0	867	0	0	4,307 14 6	
Toor	5,529	18	0	1,539	1	20	4,746 12 8	
Tillee	298	0	0	73	0	0	333 1 0	
Kuldee	2,751	0	0	1,060	1	0	2,872 13 10	
Paddy	6	0	0	2	1	20	7 13 0	
Tobacco	329	18	0	84	0	30	645 3 0	
Moong	610	5	0	162	0	0	532 6 6	
Hemp	33	0	0	9	0	0	49 8 0	
Ground Nut	50	0	0	32	0	0	112 0 0	
Chillies	26	11	0	33	0	0	132 0 0	
Wurrai	2	0	0	1	0	0	4 0 0	
Ganja	10	0	0	6	0	0	51 0 0	
Vegetables	122	0	0	117	0	0	175 8 0	
Total...	77,257	18	0				68,003 15 1	

W. H. BRADLEY, Surgeon,
On Special Duty.

HYDERABAD AFFAIRS.

Average Price of Grain for the last Five Years in the Purgunnah of Pytun.

Designation of several Objects.	1847.	1846.	1845.	1844.	1843.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Goor	16 14 6	25 0 0	16 8 0	12 0 0	17 0 0
Wheat	4 12 0	10 0 0	4 8 0	4 0 0	5 6 0
Bajree	2 12 1	7 8 0	4 0 0	2 4 0	3 0 0
Jowarree	2 4 7	8 8 0	3 8 0	1 12 0	2 2 0
Ooreed	5 0 0	7 0 0	5 4 0	6 0 0	5 8 0
Gram	4 15 6	9 12 0	3 12 0	3 0 0	5 0 0
Toor	3 1 4	9 0 0	3 4 0	2 6 0	3 8 0
Tillee	4 9 0	12 0 0	6 8 0	4 8 0	6 8 0
Kuldee	2 11 4	6 0 0	3 8 0	2 2 0	3 8 0
Paddy	3 2 0	5 0 0	6 0 0	5 0 0	4 8 0
Tobacco	7 12 0	30 0 0	12 0 0	13 0 0	15 0 0
Moong	3 4 7	6 0 0	2 8 0	3 4 0	4 0 0
Hemp	5 8 0	15 0 0	12 0 0	13 0 0	9 0 0
Ground Nuts	3 8 0	12 0 0	8 0 0	7 8 0	9 0 0
Chillies	4 0 0	20 0 0	16 0 0	15 0 0	10 0 0
Wurrai	4 0 0	3 8 0	2 0 0	2 8 0	3 0 0
Ganja	8 8 0	6 0 0	5 0 0	6 0 0	5 8 0

Table showing the Division of the Population of the Purgunnah of Pytun, according to Religious Persuasion, Profession and Calling.

Hindoos.	Amount.	Mahomedans.	Amount.
		Brought forward...	6,937
Brahmin	1,017	Hindoos—continued,	
Purdasee	229	Bhoee	87
Bunnya	237	Burrood	8
Byragee and Gosain.....	40	Brahminjai	18
Bhat	5	Bunjara	2
Kanara	7	Gondlee	5
Khutree	6	Baildar	1
Koonbee and Mallee	3,927	Goozrattee	49
Gooroo	41	Lingayst	8
Jungum	1	Mullavue	56
Kassar	22	Tamutgur	7
Sonar	151	Kolatee	6
Lohar	41	Manbhow	11
Burhue.....	43	Bheel	27
Koombhar	54	Dhor	12
Dhungur.....	324	Chamar	105
Durzee	95	Dhair	582
Ringrij	35	Mang	243
Kostee	2		
Salor.....	367		
Lohnarra.....	9		
Kolee	38	Total...	8,164
Putturphode	18		
Hujjam	83	MAHOMEDANS.	
Tailee	110	Shaik	1,013
Dhobee.....	35	Syed.....	116
		Mogul	56
		Puttan	197
Carried over...	6,937	Total...	1,382

W. H. BRADLEY, Surgeon,
On Special Duty.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Table showing the Annual Consumption of Iron and Salt in the Purgunnah of Pytun.

Designation.	Value by Weight.	From whence brought.	Quantity.	Value.	REMARKS.
IRON.					
			Pullas, Mds. S.	Rs. a. p.	
Europe, 1st Quality.....	3 Seers	Bombay..... Nirmull	2 1 34½	104 12 0	
Europe, 2nd Quality	6 do.		23 0 35	465 13 4	
Native	5 do.		7 1 14½	178 14 5	
		Total...	33 1 3½	749 7 9	
Salt.....	2 Dubboo Pysa per Seer.	Bombay and Bhowndy.	2,102 2 4	16,821 9 7	At ¾ of a seer per head.

Table showing Amount of Seebundeos and Sepahis employed in the Purgunnah of Pytun.

	Suwaras.	Foot.
Seebundeos and Sepahis	10	172

Table showing State of Education in the Purgunnah of Pytun.

Schools.		Pupils.	Persons able to read and write.
Persian.	Mahratta.		
1	13	247	1,240

Table showing the Value of Rent of Land in the Purgunnah of Pytun.

Rent.	Best.	Medium.	Inferior.	Worst.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Rate per Beegah.....	1 13 3	1 3 9	0 14 3	0 8 0

W. H. BRADLEY, Surgeon,
On Special Duty.

Statistical Return of Revenue in the Circar of Pytun, Soobah Aurungabad, for 1846-47.

DISTRICTS.	Land Revenue.	Mohurfa or House and Shop Tax.	Sayer.	Attack.	Toddy.	Grazing Cattle.	Fines.	Mango Groves.	Nuzrana or Presents.	Sundries.	Gross Amount.	Gaon Khureh.	Amount of Revenue appropriated.	Amount of Revenue alienated.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Pytun	65,944 5 6	231 0 0	22,358 2 6	1,023 0 0	100 0 0	200 1 3	4 0 0	27 0 0	23 9 0	459 0 3	90,370 2 6	19,268 5 6	57,979 2 0	13,122 11 0
Saindoorwarrah...	8,997 6 0	161 14 9	32 8 0	7 8 0	.....	.....	.....	.....	11 0 0	.....	9,210 4 9	1,191 14 6	7,407 9 0	610 13 3
Dhawurwaree .	6,131 3 6	74 0 0	108 0 0	.....	.....	.....	.....	.....	.....	.....	6,313 3 6	944 5 0	5,231 12 6	137 2 0
Total...	81,072 15 0	466 14 9	22,498 10 6	1,031 8 0	100 0 0	200 1 3	4 0 0	27 0 0	34 9 0	459 0 3	1,05,893 10 9	21,404 9 0	70,618 7 6	13,870 10 3

Statistical Return of Live and Dead Stock in the Circar of Pytun, Soobah Aurungabad.

	Bullocks.	Cows.	Calves.	He-Buttaloos.	She-Buttaloos.	Calves.	Sheep.	Goats.	Horses.	Ponies.	Collies.	Asses.	Fowls.	Ploughs.	Bukkur.	Carts.	Mholes.	Sugar Mills.	Oil Mills.	Sugar Bolders.
Circar Pytun	7,681	5,533	3,330	93	1,423	659	7,864	4,661	25	662	106	347	513	1,206	3,063	497	222	5	75	5

W. H. BRADLEY, Surgeon,
On Special Duty.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Statistical Return of Principal Vegetable Produce, its Value, and Quantity of Land cultivated, in the Circar of Pytun, Soobah Aurungabad, for 1846-47.

1	2	3	4
Designation.	Quantity of Land.	Quantity of Produce.	Value of Produce.
	Bighas Pds. V.	Pullas. Mds. S.	Rs. a p.
Sugarcane	36 10 0	50 1 20	853 12 3
Wheat... ..	7,176 0 0	1,127 0 0	5,127 0 0
Bajree	23,971 3 0	7,223 0 0	20,079 13 0
Jowarree	46,201 0 0	15,777 2 0	36,168 5 4
Ooreed... ..	6 0 0	1 0 0	5 0 0
Gram	4,739 18 0	1,140 0 0	5,449 14 6
Toor	6,955 18 0	1,891 1 20	5,841 4 8
Tillee	364 0 0	87 0 0	403 1 0
Kuldee	3,108 10 0	1,252 1 20	3,468 8 10
Paddy	6 0 0	2 1 20	7 13 0
Tobacco	448 4 0	102 0 30	861 3 0
Moong	763 6 0	195 1 20	666 6 6
Hemp	33 0 0	9 0 0	49 8 0
Ground Nut	50 0 0	32 0 0	112 0 0
Chillies	26 11 0	33 0 0	132 0 0
Wurral	2 0 0	1 0 0	4 0 0
Ganja	10 0 0	6 0 0	51 0 0
Vegetable	122 0 0	117 0 0	175 8 0
Total ...	94,024 0 0		79,456 2 1

Statistical Return of Average Price of Grain, &c., from 1842 to 1848 inclusive in the Circar of Pytun, Soobah Aurungabad.

Grain.	1848.	1847.	1846.	1845.	1844.	1843.	1842.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Goor	30 0 0	16 14 6	25 0 0	16 8 0	12 0 0	17 0 0	24 0 0	per Pulla.
Wheat	6 8 0	4 6 0	6 13 4	4 0 0	3 14 0	3 12 8	3 12 0	
Bajree	2 4 0	3 14 8	4 9 4	3 1 4	2 5 4	2 2 8	2 8 0	
Jowarree	2 2 0	2 6 10	5 8 0	3 0 0	1 10 8	2 2 8	2 2 0	
Opium	6 12 0	10 0 0	10 0 0	8 0 0	10 0 0	12 0 0	7 0 0	per Seer.
Ooreed	5 4 0	5 0 0	7 0 0	5 4 0	6 0 0	5 8 0	5 0 0	per Pulla.
Gram	6 0 0	4 15 10	7 6 8	3 9 4	3 0 0	3 2 8	3 8 0	
Toor	3 8 0	3 3 1	6 0 0	3 5 4	1 12 8	2 0 0	2 4 0	
Tillee	8 0 0	4 12 6	9 0 0	6 8 0	4 4 0	6 8 0	4 8 0	
Kuldee	4 0 0	2 15 8	4 5 4	2 10 8	1 15 4	2 4 0	1 12 0	
Rice	13 8 0	15 0 0	15 0 0	11 0 0	12 0 0	12 0 0	15 0 0	
Paddy	5 0 0	3 2 0	5 0 0	6 0 0	5 0 0	4 8 0	4 0 0	
Peas	4 0 0	6 0 0	5 0 0	3 0 0	5 0 0	3 0 0	4 0 0	
Tobacco	20 0 0	9 14 0	22 8 0	12 0 0	11 8 0	12 0 0	10 0 0	
Moong	4 0 0	3 10 3	5 0 0	2 12 0	2 10 0	4 0 0	3 0 0	
Hemp	12 0 0	4 0 0	15 0 0	12 0 0	13 0 0	9 0 0	12 0 0	
Koolthee	1 8 0	3 0 0	4 0 0	2 0 0	2 8 0	3 0 0	3 0 0	
Kar'eh	5 0 0	6 0 0	6 0 0	5 0 0	4 8 0	3 0 0	4 0 0	
Chillies	15 0 0	4 0 0	20 0 0	16 0 0	15 0 0	10 0 0	12 0 0	
Turmeric	24 0 0	22 8 0	24 0 0	15 0 0	12 0 0	17 0 0	20 0 0	
Ground Nut	7 0 0	3 8 0	12 0 0	8 0 0	7 8 0	9 0 0	8 0 0	
Rajg ra	6 0 0	7 12 0	10 0 0	7 0 0	4 8 0	7 8 0	7 0 0	
Ralls	6 0 0	5 0 0	6 0 0	3 8 0	3 8 0	2 8 0	3 0 0	
Cotton cleaned	20 0 0	24 0 0	24 0 0	30 0 0	24 0 0	22 8 0	24 0 0	
Cotton uncleaned	7 8 0	8 0 0	9 0 0	6 0 0	6 0 0	5 4 0	6 0 0	
Muckai	5 0 0	6 0 0	7 0 0	6 0 0	3 0 0	5 0 0	4 0 0	
Ulsee	4 0 0	3 8 0	5 0 0	2 0 0	4 0 0	4 0 0	3 0 0	
Ajwan	8 0 0	10 0 0	9 0 0	12 0 0	10 0 0	7 12 0	8 0 0	
Oil	17 0 0	20 0 0	24 0 0	17 0 0	13 0 0	18 0 0	12 0 0	
Ghee	51 0 0	61 0 0	72 0 0	72 0 0	60 0 0	57 0 0	51 0 0	
Sugar soft	36 0 0	48 0 0	35 0 0	38 0 0	40 0 0	45 0 0	48 0 0	
Salt	6 8 0	8 0 0	8 0 0	6 8 0	7 0 0	6 8 0	6 0 0	per Seer.
Indigo	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	
Wurral	3 4 0	4 0 0	3 8 0	2 0 0	2 8 0	3 0 0	3 0 0	per Pulla.
Ganja	7 0 0	8 8 0	6 0 0	5 0 0	6 0 0	5 8 0	4 0 0	

W. H. BRADLEY, Surgeon,
On Special Duty.

HYDERABAD AFFAIRS.

Statistical Return of the Population of the Circar of Pytun, Soobah Aurungabad.

Rank.	Caste.	Amount.	Rank.	Caste.	Amount.
	<i>Hindoos.</i>			<i>Hindoos—continued.</i>	
1	Brahmin	1,092		Brought over...	7,808
2	Purdaisce	232	28	Gondlee... ..	5
3	Bunnya... ..	288	29	Bhose	99
4	Byragce and Gosain	49	30	Hajjam	97
5	Bhat	6	31	Mullaue	56
6	Kanara	7	32	Baildar	1
7	Lingaet... ..	8	33	Puthrnpode	18
8	Goozrattee	49	34	Tailee	142
9	Coonbee... ..	4,718	35	Dhobee	45
10	Goorow	45	36	Lohnaree	9
11	Durzee	98	37	Mangbhow	14
12	Jungum... ..	2	38	Burrood... ..	8
13	Brabminjae	27	39	Bheel	34
14	Kassar	28	40	Kolatee... ..	6
15	Dhungur	370	41	Dobur	12
16	Sonar	159	42	Chambar	129
17	Lohar	49	43	Dhair or Mhar	679
18	Burhue	55	44	Mang	270
19	Rungriz... ..	35		Total... ..	9,432
20	Tambahkur	7		<i>Mahomedans.</i>	
21	Koomhar	58		Sheik	1,081
22	Kostee	2		Syed	131
23	Salee	367		Mogul	63
24	Katree ... ..	...		Pathan	244
25	Kolee	43		Total... ..	1,519
26	Bunjara	3		Grand Total	10,951
27	Tirmullee	5			
	Carried over...	7,808			

Statistical Return of the Annual Consumption of Iron and Salt in the Circar of Pytun, Soobah Aurungabad.

Designation.	Average Value by Weight.	From where brought.	Quantity.	Value.	Remarks.
IRON.			Pullas. mds. s.	Rs. a. p.	
Europe, 1st Quality	3 Seers	Bombay ...	3 0 21	127 0 0	
Europe, 2nd Quality.....	6 do.	Nirmul	28 1 8 $\frac{3}{4}$	569 12 8	
Native.....	5 do.		9 2 0 $\frac{3}{4}$	202 2 4	
		Total...	41 1 0 $\frac{1}{2}$	928 15 0	
Salt	8 Rupees per pulla.	Bombay and Bhewndy.	2,401 0 15	19,209 0 0	

PHYSICAL FEATURES AND NATURAL PHENOMENA.

*Statistical Return of Seebundees and Sepahis employed in the Circar of Pytun,
Soobah Aurungabad.*

	Suwaras.	Foot.
Seebundees and Sepahis	10	200

Statistical Return of State of Education in the Circar of Pytun, Soobah Aurungabad.

Schools.		Pupils.	Persons able to Read and Write.
Persian.	Mahratta.		
1	13	247	1,322

A List of Tradesmen and Inhabitants in the City of Pytun.

Historians and Pundits	18	Hindoo Water Carriers	3
Brahmins	291	Potters... ..	16
Jagheerdars	14	Bricklayers	26
Zameendars	10	Labourers	380
Patails... ..	4	Chunam Sellers	9
Putwarries	8	Stone Cutters	19
Schoolmasters... ..	8	Farriers	1
Doctors	4	Founders	7
Clerks	139	Gunpowder Makers	1
Cauzies	3	Sword Cutters... ..	1
Bankers	66	Tinmen	2
Money Changers	92	Cotton Cleaners	1
Brokers	27	Saddle Makers... ..	1
Bunnyas	36	Basket Makers	8
Grain Merchants	137	Waist Ring Makers	1
Dall Sellers	2	Brass and Powder Ring Makers	1
Cultivators	181	Melters of Old Lace	5
Brahmin Cooks	1	Loom Makers	4
Sweetmeat Makers	17	Oilmen	24
Milk and Butter Sellers	22	Barbers	39
Goldsmiths	63	Washermen	10
Coppersmiths	7	Mahomedan Water Carriers... ..	29
Brass-smiths	13	Sepoys	132
Ironsmiths	18	Pensioners	4
Carpenters	10	Boatmen	16
Gilders... ..	26	Moollas	3
Wire Drawers... ..	162	Tomb Servants	1
Tinsel Makers... ..	70	Horsebreakers... ..	1
Wire and Thread Spinners	147	Nucharchies	2
Tailors... ..	12	Musicians	11
Menders of Old Clothes	2	Camel Men	2
Silk Dyers	34	Dancing Girls with Tyephas	47
Cotton Thread and Cloth Dyers	78	Dancing Girls without do.	17
Weavers	737	Mutton Butchers	27
Uttur Sellers	2	Beef Butchers	9
Betel-leaf Sellers	11	Shoemakers	44
Tobacco Sellers	6	Horn Blowers	1
Shepherds	14	Village Porters	20
Borahs... ..	2	Dhairs... ..	47
Spirit Sellers	1	Mhangs	34
Mahomedan Cooks	3	Sweepers	11

W. H. BRADLEY, Surgeon,
On Special Duty.

HYDERABAD AFFAIRS.

Customs Duties payable on Goods Imported into and Exported from the City of Pylun, Circular Aurangabad, for 1846-47.

Enumeration of Goods.	Quantity.		Value.		Duty.															
	Goods on which Duties had been paid.		Goods on which Duties had been remitted by the Government.		Duties paid.					Duties remitted.										
	P. M. S.	P. M. S.	Total.	Rs. a. p.	Rs. a. p.	Rs. a. p.	In or Impost.	Chowkee.	Total.	Hucklars and Zin-meendars.	Total.	In or Impost.	Chowkee.	Total.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Grand Total.	
IMPORTS.																				
Sugar Soft	63 0 164	3 1 20	68 1 304	2,699 5 6	198 0 0	2,708 5 6	125 9 9	28 3 9	153 13 6	28 3 9	153 13 6	14 0 6	167 14 0	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Alum	0 0 294		0 0 294	5 0 0		5 0 0	0 4 6	0 1 3	0 5 9	0 1 3	0 5 9	0 0 9	0 6 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Gunpowder	0 2 183		0 2 183	18 14 0		18 14 0	0 15 6	0 5 9	1 5 3	0 5 9	1 5 3	0 3 0	1 8 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Ghee	219 0 15	6 0 10	225 0 15	7,745 12 0	1,465 0 0	7,891 12 0	207 7 0	52 7 6	269 14 6	52 7 6	269 14 6	42 13 3	302 11 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Salt	84 1 274	33 0 0	117 1 274	6,124 4 0	1,992 0 0	7,116 4 0	238 13 9	38 6 0	275 8 9	38 6 0	275 8 9	18 10 9	294 14 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Saltpetre	285 0 14	24 2 10	309 2 14	2,762 11 0	176 4 0	2,586 15 0	62 5 0	59 13 0	113 2 0	59 13 0	113 2 0	14 7 3	127 9 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Paprikhar (Soda)	0 0 15		0 0 15	10 19 0		10 19 0	0 14 0	0 6 6	1 4 6	0 6 6	1 4 6	0 3 2	1 7 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Kalakhar	14 0 5		14 0 5	49 2 0		49 2 0	0 9 9	0 1 0	1 0 9	0 1 0	1 0 9	0 2 3	1 3 2	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Hemp (Sund)	0 1 10		0 1 10	5 0 0		5 0 0	0 4 6	0 3 0	0 7 6	0 3 0	0 7 6	0 1 6	0 9 0	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Hemp (Umbarree)	0 1 20		0 1 20	14 8 0		14 8 0	0 13 0	0 4 9	0 9 6	0 13 0	0 9 6	0 2 3	1 2 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Opodbar, Pastille	0 1 20		0 1 20	105 0 0	60 0 0	165 0 0	5 5 0	3 1 6	3 0 6	3 1 6	3 0 6	1 8 0	4 8 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Tobacco	6 2 10	3 1 20	9 0 30	12 8 0		12 8 0	0 9 0	0 12 6	1 3 6	0 9 0	1 3 6	0 6 0	1 9 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Ubeer	1 2 0		1 2 0	12 8 0		12 8 0	0 9 0	0 1 9	0 3 9	0 1 9	0 3 9	0 1 0	0 4 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Honey	0 0 30		0 0 30	10 0 0		10 0 0	0 9 0	0 1 9	0 3 9	0 1 9	0 3 9	0 1 0	0 4 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cotton cleaned	4 1 34		4 1 34	98 13 0		98 13 0	5 6 3	2 2 0	7 8 3	2 2 0	7 8 3	0 13 0	8 7 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Do. Longcloth pieces, No. 404				233 13 6		233 13 6	7 5 6	2 5 6	9 11 0	2 5 6	9 11 0	0 1 3	9 12 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Mushroon pieces, No. 10.				103 0 0		103 0 0	2 13 3	0 9 3	3 6 6	2 13 3	3 6 6	0 2 0	3 8 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Scossia pieces, No. 312.				889 4 0	4 8 0	893 12 0	19 7 9	6 9 0	17 0 9	6 9 0	17 0 9	0 2 0	17 2 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Khadee pieces, No. 944.				1,503 6 6	13 0 0	1,516 6 6	35 12 9	6 7 9	62 4 6	6 7 9	62 4 6	0 9 0	63 13 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Scossia do. No. 4					5 4 0		5 4 0							Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Raw silk	8 0 33		8 0 33	12,152 14 0		12,152 14 0	390 1 6	49 11 6	489 13 0	49 11 6	489 13 0	4 9 9	494 6 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Mockemes on cloths.														Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Grain.																				
Wheat	945 1 35	58 1 20	1,004 0 15	8,159 11 0	422 8 0	8,582 9 0	187 2 0	24 3 3	211 5 3	24 3 3	211 5 3	26 1 6	237 6 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Bajrae	1130 0 25	283 0 10	1,413 0 35	3,885 6 0	1,933 12 0	5,818 15 0	139 13 0	154 7 3	154 7 3	154 7 3	154 7 3	16 4 3	171 1 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Jowarree	68 2 20	679 0 10	747 2 30	27,751 12 0	2,107 8 0	29,858 15 0	613 0 0	158 14 9	183 15 0	158 14 9	183 15 0	22 14 3	205 2 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Gram	80 2 10	75 0 0	155 2 10	615 5 0	408 0 0	1,023 5 0	235 1 0	74 9 0	37 10 3	74 9 0	37 10 3	15 0 0	52 10 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Rice	889 1 20	117 2 10	1,006 0 30	4,946 0 0	1,420 4 0	6,366 4 0	121 6 6	4 5 6	126 2 2	4 5 6	126 2 2	15 0 0	141 2 2	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Tur	105 2 30	82 2 0	187 2 30	492 8 0	340 4 0	832 12 0	61 0 0	32 7 9	153 3 3	32 7 9	153 3 3	15 0 0	168 3 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Kurru	446 1 29	11 0 0	457 1 29	2,618 2 0	23 0 0	2,641 2 0	61 0 0	32 7 9	153 3 3	32 7 9	153 3 3	15 0 0	168 3 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Mint	9 0 30	25 0 0	34 0 30	20 4 0	75 0 0	95 4 0	105 4 0	1 0 0	1 0 0	1 0 0	1 0 0	1 0 0	1 0 0	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Moong	143 2 30	27 2 10	170 4 40	828 10 6	168 8 0	995 18 6	95 3 6	5 13 0	31 0 0	5 13 0	31 0 0	5 13 0	36 13 0	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Kala	5 1 35	0 1 29	6 0 15	46 12 0	3 0 0	49 12 0	2 10 3	1 2 3	3 12 6	1 2 3	3 12 6	0 0 3	3 12 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Warra	0 1 0		0 1 0	2 0 0		2 0 0	0 1 9	0 1 9	0 3 0	0 1 9	0 3 0	0 0 3	0 3 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Worred	2 0 30	1 0 0	3 0 30	14 0 0	6 0 0	20 0 0	0 10 3	0 1 9	0 12 0	0 1 9	0 12 0	0 0 3	0 12 3	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Willes	194 1 35		194 1 35	1,505 7 0		1,505 7 0	84 13 6	33 4 0	106 2 3	33 4 0	106 2 3	10 5 6	116 7 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Karva	3 2 10		3 2 10	24 8 0		24 8 0	1 4 0	0 10 3	1 14 3	0 10 3	1 14 3	0 0 3	1 14 6	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Musoor	1 0 0		1 0 0	6 0 0		6 0 0	0 2 9	0 0 9	0 3 6	0 0 9	0 3 6	0 0 3	0 3 9	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Enumeration of Goods.	Quantity.		Value.		Duties paid.				Duties remitted.				Grand Total.				
	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Total.	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Total.	In or Impost.	Chowkee.	Total.	Huckdars and Zamindars.	Total.	In or Impost.		Chowkee.	Total.	Huckdars and Zamindars.	Total.
	P. M. S.	P. M. S.	P. M. S.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
IMPORTS—continued.																	
Grain.																	
Koolthee	1 0 30	1 0 30	3 12 0	3 12 0	0 1 9	0 7 3	0 9 0	0 3 6	0 12 6	0 10 6	0 12 0	0 1 3	0 13 3	0 12 6	0 13 3	0 12 6	0 13 3
Paddy	48 0 30	48 0 30	857 6 0	857 6 0	15 1 6	8 14 9	25 0 3	2 7 9	27 8 0	13 6 6	19 10 0	1 12 0	21 6 0	48 14 0	48 14 0	48 14 0	48 14 0
Dall Floor	1 1 10	1 1 10	13 4 0	13 4 0	0 11 9	0 6 0	1 0 9	0 3 9	1 0 9	0 6 0	1 0 9	0 3 9	1 0 9	1 3 6	1 3 6	1 3 6	1 3 6
Dall Chenna	0 0 30	0 0 30	2 4 0	2 4 0	0 1 0	0 1 0	0 2 0	0 0 3	0 2 3	0 1 0	0 2 3	0 0 3	0 2 6	0 2 3	0 2 6	0 2 3	0 2 6
Relicera	27 0 24	27 0 24	294 4 0	294 4 0	8 9 9	9 13 9	18 6 6	3 10 3	22 0 9	1 5 3	2 10 6	0 8 0	3 2 6	25 3 3	25 3 3	25 3 3	25 3 3
Kusaur or extra duty	.....	.....	.....	.....	8 2 0	.....	8 2 0	.....	8 2 0	.....	.....	.....	.....	8 2 0	8 2 0	8 2 0	8 2 0
Mohitab	.....	.....	.....	.....	.....	.....	.....	31 8 0	31 8 0	.....	.....	.....	.....	31 8 0	31 8 0	31 8 0	31 8 0
Drugs and Dyeing Stuff.																	
Safflower, 1st sort	158 1 244	158 1 244	3,546 10 0	3,546 10 0	184 9 6	71 5 9	255 15 3	34 6 6	290 5 9	.....	.....	.....	.....	290 5 9	290 5 9	290 5 9	290 5 9
" 2nd "	12 0 274	12 0 274	443 4 0	443 4 0	23 5 0	5 8 6	28 13 6	2 11 9	31 9 3	.....	.....	.....	.....	31 9 3	31 9 3	31 9 3	31 9 3
Judgo	0 2 27	0 2 27	239 8 0	239 8 0	12 5 3	6 13 0	18 4 3	2 15 6	21 1 3	.....	.....	.....	.....	21 1 3	21 1 3	21 1 3	21 1 3
Cakes, Soap, Native	0 0 11	0 0 11	2 12 0	2 12 0	0 2 3	0 10 0	0 12 3	0 3 0	0 2 6	.....	.....	.....	.....	0 2 6	0 2 6	0 2 6	0 2 6
Dry Gooseberry	0 0 16	0 0 16	1 4 0	1 4 0	8 1 0	1 4 9	0 1 0	0 10 6	10 5 3	.....	.....	.....	.....	10 5 3	10 5 3	10 5 3	10 5 3
Opium	0 0 234	0 0 234	184 4 0	184 4 0	1 3 6	1 3 6	3 0 0	0 13 6	3 10 6	.....	.....	.....	.....	3 10 6	3 10 6	3 10 6	3 10 6
Pipery Seeds	2 2 334	2 2 334	23 12 0	23 12 0	2 3 0	1 3 3	3 5 3	0 8 0	3 13 3	0 1 0	0 1 9	0 0 3	0 2 0	2 16 6	2 16 6	2 16 6	2 16 6
Turmeric, 1st sort	0 0 10	0 0 10	45 6 0	45 6 0	1 4 0	1 0 0	0 2 0	0 0 6	0 2 6	.....	.....	.....	.....	0 2 6	0 2 6	0 2 6	0 2 6
" 2nd "	0 0 15	0 0 15	1 0 0	1 0 0	0 1 0	0 1 6	0 2 6	0 0 9	0 3 3	.....	.....	.....	.....	0 3 3	0 3 3	0 3 3	0 3 3
Planchio Flower	0 0 64	0 0 64	0 1 0	0 1 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nurkuch	0 0 64	0 0 64	0 1 0	0 1 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Isaburg (Seeds of Water Lily)	0 1 1	0 1 1	15 13 0	15 13 0	0 14 3	2 5 0	3 3 3	1 2 3	4 5 6	.....	.....	.....	.....	4 5 6	4 5 6	4 5 6	4 5 6
Gallurs	0 1 0	0 1 0	2 0 0	2 0 0	0 1 3	0 2 6	0 4 3	0 1 3	0 5 6	.....	.....	.....	.....	0 5 6	0 5 6	0 5 6	0 5 6
Goolali, red stuff	0 1 20	0 1 20	12 0 0	12 0 0	0 11 0	0 3 9	0 14 9	0 1 9	1 0 6	.....	.....	.....	.....	1 0 6	1 0 6	1 0 6	1 0 6
Gania, Bharg	7 1 54	7 1 54	231 8 0	231 8 0	22 14 9	24 8 9	47 7 6	1 10 0	49 1 6	.....	.....	.....	.....	49 1 6	49 1 6	49 1 6	49 1 6
Kirmidana (Cochineal)	1 2 10	1 2 10	139 5 0	139 5 0	7 3 3	1 0 0	8 3 3	0 0 9	8 4 0	.....	.....	.....	.....	8 4 0	8 4 0	8 4 0	8 4 0
Flower of Marling Nuts	.....	.....	5 0 0	5 0 0	0 2 3	0 12 6	0 14 9	0 4 9	1 3 6	.....	.....	.....	.....	1 3 6	1 3 6	1 3 6	1 3 6
Apple	0 0 15	0 0 15	3 12 0	3 12 0	0 0 9	0 0 3	0 1 0	0 1 0	0 2 0	.....	.....	.....	.....	0 2 0	0 2 0	0 2 0	0 2 0
Koonkoo, red powder	23 0 134	23 0 134	749 11 0	749 11 0	38 10 0	10 5 3	49 2 3	5 2 3	54 4 6	1 0 9	6 15 9	0 8 3	7 8 0	61 12 6	61 12 6	61 12 6	61 12 6
Betel Nuts	0 0 20	0 0 20	2 0 0	2 0 0	0 1 9	0 1 3	0 3 0	0 0 9	0 3 0	.....	.....	.....	.....	0 3 0	0 3 0	0 3 0	0 3 0
Anise	0 0 04	0 0 04	0 10 0	0 10 0	0 0 6	.....	0 0 6	.....	0 0 6	.....	.....	.....	.....	0 0 6	0 0 6	0 0 6	0 0 6
Socafale Mossee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sundry Drugs, &c.	.....	.....	2,952 6 9	2,952 6 9	149 7 3	18 8 9	165 0 0	12 9 0	177 9 0	55 11 6	22 2 6	3 5 6	35 6 0	212 15 0	212 15 0	212 15 0	212 15 0
Fruits dried and undried.																	
Citrus and Nuts	17 0 35	17 0 35	286 0 0	286 0 0	7 3 6	6 5 0	13 14 6	2 6 0	16 4 6	1 10 9	2 0 0	0 8 0	3 8 0	19 12 6	19 12 6	19 12 6	19 12 6
Cheeronee Seeds	0 1 0	0 1 0	2 4 0	2 4 0	0 5 9	0 2 3	0 8 0	1 3	0 9 3	.....	.....	.....	.....	0 9 3	0 9 3	0 9 3	0 9 3

HYDERABAD AFFAIRS.

Enumeration of Goods.	Quantity.		Value.		Duty.						Grand Total.			
	Goods on which Duties had been paid.		Goods on which Duties had been remitted by the Government.		Duties paid.			Duties remitted.						
	P. M. S.	F. M. S.	P. M. S.	F. M. S.	Rs. a. p.	Rs. a. p.	Rs. a. p.	In or Impost.	Chowkee.	Total.		Rs. a. p.	Rs. a. p.	Total.
IMPORTS—continued.														
Fruits dried and undried.														
Goor umbree	1 0 13	.....	.....	.....	155 0 0	7 3 0	4 4 3	.....	.....	.....	.....	.....	.....	2 9 3
Dates, wet	9 1 30	.....	.....	.....	58 12 0	3 3 0	1 4 6	.....	.....	.....	.....	.....	.....	13 6 0
Dates, dry	2 2 17½	.....	.....	.....	39 0 0	1 11 6	2 13 3	.....	.....	.....	.....	.....	.....	5 1 6
Cocoanuts	6 0 21	.....	.....	.....	130 8 0	8 8 3	2 13 3	1 13 3	0 9 9	2 7 0	0 4 6	.....	.....	15 7 0
Do. dry	6 0 21	1 1 0	.....	.....	130 8 0	8 8 3	2 13 3	1 13 3	0 9 9	2 7 0	0 4 6	.....	.....	15 7 0
Katoo Nuts (Cashew Nuts)	0 0 17½	.....	.....	.....	4 8 0	0 4 0	0 1 3	.....	.....	.....	.....	.....	.....	5 5 2
Singara Nuts	0 0 10	.....	.....	.....	2 8 0	0 2 3	0 0 9	.....	.....	.....	.....	.....	.....	0 3 3
Mungos	103 1 20	.....	.....	.....	1156 4 0	32 1 9	31 3 3	63 5 0	512 0 0	69 1 0	.....	.....	.....	69 1 0
Guavas	56 2 10	.....	.....	.....	175 14 0	4 14 3	3 8 9	8 7 0	1 9 3	10 0 3	.....	.....	.....	10 0 3
Grapes	18 2 10	.....	.....	.....	171 4 0	4 13 6	3 7 9	13 5 6	1 0 9	14 6 3	.....	.....	.....	14 6 3
Guward Apples	7 1 20	.....	.....	.....	36 8 0	1 0 6	2 1 3	3 1 9	0 3 3	3 5 0	.....	.....	.....	3 5 0
Pomegranates	0 1 20	.....	.....	.....	2 8 0	0 1 3	0 0 3	0 4 9	0 1 9	0 6 6	.....	.....	.....	0 6 6
Cucumbers	0 1 20	.....	.....	.....	1 8 0	0 1 3	0 0 3	0 1 6	.....	0 1 6	.....	.....	.....	0 1 6
Figs	0 1 20	.....	.....	.....	12 8 0	0 5 9	0 3 9	0 9 6	0 1 9	0 11 3	.....	.....	.....	0 11 3
Musk Melons	20 1 20	.....	.....	.....	51 4 0	1 7 6	0 10 6	2 2 0	0 4 8	2 6 6	.....	.....	.....	2 6 6
Bair, Ind. Apple (? plum)	17 0 0	.....	.....	.....	42 8 0	1 3 0	0 8 6	1 11 6	0 3 9	1 15 3	.....	.....	.....	1 15 3
Sugar Cane	31 0 0	.....	.....	.....	77 8 0	2 2 9	0 8 0	2 10 9	0 7 0	3 1 9	.....	.....	.....	3 1 9
Plantains	13 1 20	.....	.....	.....	122 0 0	3 6 6	1 11 3	5 1 9	0 6 0	5 7 9	.....	.....	.....	5 7 9
Sweet Potatoes	93 0 0	.....	.....	.....	349 8 0	9 13 9	15 0 9	15 12 3	1 5 0	17 1 9	.....	.....	.....	17 1 9
Raw Mangoes	7 0 0	.....	.....	.....	35 0 0	1 0 3	0 7 3	1 7 6	0 3 0	1 10 6	.....	.....	.....	1 10 6
Muckai heads (Indian Corn)	135 1 20	.....	.....	.....	339 4 0	9 7 3	0 2 2	11 9 3	1 14 0	13 7 3	.....	.....	.....	13 7 3
Limes	37 0 30	.....	.....	.....	149 10 0	4 2 3	4 10 9	8 13 6	1 0 6	9 14 0	.....	.....	.....	9 14 0
Vegetables.														
Brinjals	118 1 20	.....	.....	.....	176 8 0	8 12 3	1 2 0	9 15 3	2 2 3	12 1 6	.....	.....	.....	12 1 6
Onions	143 0 30	.....	.....	.....	218 13 0	11 2 3	1 6 0	12 8 3	2 0 3	12 8 6	.....	.....	.....	12 8 6
Tamarind	14 0 0	.....	.....	.....	120 0 0	4 1 3	6 4 9	16 6 0	3 1 0	13 7 0	.....	.....	.....	13 7 0
Gourds	66 0 30	.....	.....	.....	170 4 0	4 11 6	1 0 6	16 0 0	0 4 9	16 0 9	.....	.....	.....	16 0 9
Gowaria Phulies	15 0 0	.....	.....	.....	29 6 0	0 14 3	0 2 3	3 12 0	0 3 3	3 15 3	.....	.....	.....	3 15 3
Karala	10 0 0	.....	.....	.....	16 0 0	0 10 3	0 1 3	4 15 6	0 2 3	1 1 9	.....	.....	.....	1 1 9
Radish	18 0 0	.....	.....	.....	25 8 0	1 6 6	0 2 6	1 9 0	0 4 0	1 13 0	.....	.....	.....	1 13 0
Chootala Bhalee	2 1 20	.....	.....	.....	5 8 0	0 2 3	0 0 3	0 2 6	0 0 6	0 3 0	.....	.....	.....	0 3 0
Total	27 0 0	.....	.....	.....	39 5 0	2 2 3	0 0 3	2 6 6	0 6 0	2 12 6	.....	.....	.....	2 12 6
Mathaka Bhalee	69 2 10	.....	.....	.....	82 3 0	4 10 0	0 10 0	5 4 0	0 15 9	6 3 9	.....	.....	.....	6 3 9
Kotmeer, Coriander	13 2 10	.....	.....	.....	18 8 0	1 0 9	0 2 0	1 2 9	0 3 0	1 5 9	.....	.....	.....	1 5 9
Blaunder Oakies	12 0 0	.....	.....	.....	20 12 0	1 2 6	0 1 9	1 4 3	0 2 9	1 7 0	.....	.....	.....	1 7 0
Potaka Pan	0 1 20	.....	.....	.....	6 0 0	0 2 5	0 0 3	0 3 0	0 0 3	0 3 3	.....	.....	.....	0 3 3

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Enumeration of Goods.	Quantity.		Value.		Duty.								Grand Total.		
	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Total.	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Duty paid.				Duties remitted.					
						In or Impost.	Chowkee.	Total.	Huckdars and Zamindars.	Total.	In or Impost.	Chowkee.		Total.	Huckdars and Zamindars.	Total.
	P. M. S.	P. M. S.	P. M. S.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
IMPORTS—continued.															
Vegetables.															
Sapota Bhajee	0 1 20	...	0 1 20	0 8 0	0 0 6	...	0 0 6	0 0 3	0 0 9	...	...	...	...	...	0 0 9
Carrots	120 1 20	...	120 1 20	260 10 0	5 10 0	...	7 8 3	1 10 9	9 2 0	...	...	...	...	...	9 2 0
Plantain Leaves	13 1 20	...	13 1 20	33 14 0	0 15 6	...	0 15 6	...	0 15 6	...	...	...	...	...	0 15 6
Beet Leaves	193 0 0	0 1 20	193 1 20	...	220 6 6	25 10 0	246 0 6	21 5 9	267 6 3	0 10 0	0 1 0	0 11 0	0 0 8	0 11 9	268 3 0
Phutke or Extra Fee on Vegetables, &c.															
On account of Sirdesh-moote .....	...	...	...	...	26 3 3	...	26 3 3	...	26 3 3	...	...	...	...	...	26 3 3
" of Shir .....	...	...	...	...	60 0 0	...	60 0 0	...	60 0 0	...	...	...	...	...	60 0 0
" of Jute-wala .....	...	...	...	...	36 0 0	...	36 0 0	...	36 0 0	...	...	...	...	...	36 0 0
Mohab on Vegetables .....	...	...	...	...	...	...	...	12 0 0	12 0 0	...	...	...	...	...	12 0 0
Spices.															
Coriander Seeds	1 0 0	...	1 0 0	15 8 0	0 14 0	0 7 3	1 5 3	0 3 6	1 8 9	...	...	...	...	...	1 8 9
Coves	0 0 04	...	0 0 04	0 9 0	0 0 6	...	0 0 6	...	0 0 6	...	...	...	...	...	0 0 6
Asan	0 1 20	...	0 1 20	4 8 0	0 4 0	...	0 4 0	...	0 4 0	...	...	...	...	...	0 4 0
Green Ginger	0 1 20	...	0 1 20	0 12 0	0 12 0	...	0 12 0	...	0 12 0	...	...	...	...	...	0 12 0
Dry Ginger	0 0 10	...	0 0 10	3 4 0	0 3 0	...	0 3 0	...	0 3 0	...	...	...	...	...	0 3 0
Green Chillies	85 0 30	...	85 0 30	207 0 0	11 8 6	2 10 6	14 2 0	0 0 3	0 4 0	...	...	...	...	...	0 4 0
Dry Chillies	0 2 15	...	0 2 15	30 12 0	1 11 3	0 5 8	2 1 0	1 12 0	15 13 0	...	...	...	...	...	15 13 0
Garlic	0 1 20	...	0 1 20	8 0 0	0 3 9	...	0 3 9	0 7 6	0 1 3	...	...	...	...	...	0 3 9
Sundries.															
Oil	131 1 94	20 1 32	152 0 14	3,732 2 0	169 10 0	58 11 9	248 5 9	22 0 9	270 6 5	35 6 3	9 2 6	44 8 9	3 7 0	47 15 9	318 6 3
Benjamin Income	0 0 04	...	0 0 04	0 15 0	0 0 9	...	0 0 9	...	0 0 9	...	...	...	...	...	0 0 9
Gum Arabic	5 0 61	...	5 0 61	92 8 0	3 12 9	2 4 6	6 1 3	...	7 3 3	...	...	...	...	...	7 3 3
Lac, Shell	2 0 27	...	2 0 27	22 0 0	1 2 0	0 6 6	1 8 6	0 2 9	1 11 9	...	...	...	...	...	1 11 9
Catechu	0 1 25	...	0 1 25	17 8 0	0 15 6	0 4 0	1 3 6	0 2 9	1 5 6	...	...	...	...	...	1 5 6
Bur ter	24 0 324	5 0 23	29 1 174	729 1 0	83 6 3	20 4 9	1,811 0	10 1 9	118 12 9	21 11 3	4 5 6	23 0 9	2 2 9	23 8 6	147 0 3
Teakwood Logs .....	...	...	...	883 12 0	55 6 3	12 5 3	67 13 6	0 2 3	73 15 9	...	...	...	...	...	73 15 9
Bamboos, 20 bullock loads .....	...	...	...	...	3 4 3	4 0 6	7 4 9	1 2 3	8 7 0	...	...	...	...	...	8 7 0
Earthen Toys	3 0 0	...	3 0 0	9 0 0	0 8 3	0 3 0	0 11 3	...	0 11 3	...	...	...	...	...	0 11 3
Kurbee .....	...	...	...	...	20 3 3	7 3 6	27 6 9	5 6 9	32 13 6	0 13 6	0 9 3	1 6 9	0 2 0	1 8 9	24 6 3
Firewood .....	...	...	...	...	40 5 9	7 9 0	47 14 9	8 8 9	56 7 6	15 6 9	10 12 9	26 3 6	2 5 0	23 8 6	85 0 0
Tai puttee Gunnies .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
No. 20 Charcoal, ass loads, No. 216 .....	...	...	...	...	0 8 2	0 2 6	0 10 9	0 1 0	0 11 9	0 12 0	0 2 3	0 14 9	0 1 3	1 0 0	1 11 9
	...	...	...	...	21 1 0	3 7 6	24 6 6	1 8 9	26 1 3	...	...	...	...	...	26 1 3

HYDERABAD AFFAIRS.

Enumeration of Goods	Quantity.		Value.		Duty.						Grand Total.					
					Duties paid.			Duties remitted.								
	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Total.	In or Impost.	Chowkee.	Total.	Huckdars and Zemindars.	In or Impost.	Chowkee.	Total.		Huckdars and Zemindars.	Total.			
IMPORTS—continued.	P. M. S.	P. M. S.	P. M. S.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
<i>Sundries.</i>																
Gold (tolas 1,3724)	28,824 4 0	266 1 0	....	....	225 1 0	129 11 6	395 2 6	....	....	....	....	....	835 12 6
Silver (tolas 53,553)	54,593 0 0	417 12 0	....	....	417 12 0	418 5 0	836 11 0	....	....	....	....	....	836 1 0
Pipe Clay	0 0 5	....	....	0 8 0	0 0 6	....	....	0 0 3	0 0 9	0 1 0	....	....	....	....	....	0 1 0
Mohlsib on Keerana	36 1 9	36 1 9	....	....	....	....	....	36 1 9
weighing grain and other articles	75 0 0	....	....	75 0 0	....	75 0 0	....	....	....	....	....	75 0 0
Kusur or extra duty on Sundries	36 6 3	....	....	36 6 3	....	36 6 3	....	....	....	....	....	36 6 3
Total Rupees	92,400 0 0	4,720 6 6	1,019 6 0	5,739 12 6	1,277 10 0	618 12 3	6,967 6 6	161 1 0	769 13 3	94 8 9	864 6 0	7,831 12 6	
<i>Weekly Bazaar.</i>																
Bumia shops	45 0 0	....	....	45 0 0	....	45 0 0	....	....	....	....	....	45 0 0
Cloth merchants	60 0 0	....	....	60 0 0	....	60 0 0	....	....	....	....	....	60 0 0
Grain merchants and miscellaneous vendors	571 1 6	4 11 9	575 13 3	....	....	575 13 3	....	....	....	....	....	575 13 3
Mohlsib on weekly Bazar	18 0 0	18 0 0	....	....	....	....	....	18 0 0
Total	676 1 6	4 11 9	630 13 3	18 0 0	638 13 3	....	....	....	....	....	....	638 13 3
<i>Neighbouring Villages.</i>																
Pattagon	21 0 0	....	....	21 0 0	3 0 0	24 0 0	....	....	....	....	....	24 0 0
Cowah	10 0 0	....	....	10 0 0	2 0 0	12 0 0	....	....	....	....	....	12 0 0
Narrah	10 0 0	....	....	10 0 0	2 0 0	12 0 0	....	....	....	....	....	12 0 0
Punthawar	5 0 0	....	....	5 0 0	1 0 0	6 0 0	....	....	....	....	....	6 0 0
Ladocha Garden	6 0 0	....	....	6 0 0	....	6 0 0	....	....	....	....	....	6 0 0
Nimbolcur Sowcar	57 9 0	....	....	57 9 0	5 7 0	63 0 0	....	....	....	....	....	63 0 0
Saothra Malles	4 0 0	....	....	4 0 0	....	4 0 0	....	....	....	....	....	4 0 0
Total	113 9 0	....	....	113 9 0	13 7 0	127 0 0	....	....	....	....	....	127 0 0
EXPORTS.																
<i>Cloth.</i>																
Turbanda, No. 18,291	126,651 8 0	184 3 0	126,835 11 0	5,372 2 9	....	47 11 9	5,419 14 6	10 1 6	....	....	....	10 1 6	5,430 0 0
Dooputis, No. 3,143	140,250 4 0	77 0 0	140,327 4 0	3,535 8 0	....	37 6 3	3,575 14 3	4 5 6	....	....	....	4 5 6	3,580 2 0
Palloos, No. 290	15,308 4 0	57 0 0	15,365 4 0	617 12 9	....	5 11 0	623 7 9	4 13 6	....	....	....	4 13 6	628 2 2
Khums, No. 1571	1,006 0 0	64 1 0	1,070 1 0	48 13 9	....	0 6 0	49 3 9	3 9 7	....	....	....	3 9 7	52 13 3

PHYSICAL FEATURES AND NATURAL PHENOMENA.

[illegible]

HYDERABAD AFFAIRS.

Enumeration of Goods.	Quantity.		Value.		Duty.						Total.				
	Goods on which Duties had been paid.	Total.	Goods on which Duties had been paid.		Total.		Duties remitted.								
			P. M. S.	P. M. S.	Rs. a. p.	Rs. a. p.	In or Impost.	Chowkee.	Total.	Huckdars and Zamindars.		Total.			
SUNDRY CITY CROPS—continued.	P. M. S.	P. M. S.	P. M. S.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Selling She-Buffaloes No. 30.	342 8 0	342 8 0	14 7 3	40 13 0	5 0 0	51 13 0	....	....	15 0 0	2 0 0	....	51 13 0
Selling She-Buffaloes No. 8.	130 0 0	270 0 0	....	45 0 0	6 0 0	51 0 0	15 0 0	....	....	....	17 0 0	66 0 0
Selling old buildings.	39 3 3	5 9 6	44 12 9	....	....	....	....	....	44 12 9
Bedding cotton.	1 4 0	....	1 4 0	....	....	....	....	....	1 4 0
Midwifery.	25 0 0	....	25 0 0	....	....	....	....	....	25 0 1
Fast or hair-marriages No. 2.	112 0 0	14 0 0	126 12 0	....	....	....	....	....	126 12 0
Foundation Duties.	43 12 0	29 12 0	73 8 0	....	....	....	....	....	73 8 0
Religious ceremonies in general, No. 14.	28 14 0	5 12 0	34 10 0	....	....	....	....	....	34 10 0
Purnalia, or { gutters, windows, chimneys, } constructing.	0 5 0	0 11 0	1 0 0	....	....	....	....	....	1 0 0
Windows.	6 4 0	8 14 0	13 2 0	....	....	....	....	....	13 2 0
Chimneys.	0 10 0	1 6 0	2 0 0	....	....	....	....	....	2 0 0
Sifting chibers.	12 0 0	....	12 0 0	....	....	....	....	....	12 0 0
Fines.	58 13 9	8 6 8	67 4 3	....	....	....	....	....	67 4 3
Presents.	91 15 0	13 13 0	105 12 0	....	....	....	....	....	105 12 0
Mohelab on Sundry City Customs.	30 2 0	30 2 0	....	....	....	....	....	30 2 0
Total Rupees.	1,671 8 0	1,361 8 0	1,165 4 0	71 10 0	1,239 14 0	291 12 6	1,531 10 0	18 2 9	17 0	9 5 3	21 15 0	1,533 9 6
TRANSLIT DUTIES.															
Collected at the Naks of the following Villages.															
Chiba Pytan.	61 9 3	....	61 9 3	....	....	....	....	....	61 9 3
Rahugan.	49 0 3	....	49 0 3	....	....	....	....	....	49 0 3
Bhosa.	22 7 0	....	22 7 0	....	....	....	....	....	22 7 0
Khaigan.	27 2 3	....	27 2 3	....	....	....	....	....	27 2 3
Faronda.	80 14 9	....	80 14 9	....	....	....	....	....	80 14 9
Utoal.	184 13 6	....	184 13 6	....	....	....	....	....	184 13 6
Pedee.	149 5 6	....	149 5 6	....	....	....	....	....	149 5 6
Neetagan.	36 14 6	....	36 14 6	....	....	....	....	....	36 14 6
Barthugan.	32 8 9	....	32 8 9	....	....	....	....	....	32 8 9
Malveher.	49 7 6	....	49 7 6	....	....	....	....	....	49 7 6
Garragan.	9 3 6	....	9 3 6	....	....	....	....	....	9 3 6
Chowharu Jalgaon.	21 7 6	....	21 7 6	....	....	....	....	....	21 7 6
Lobgaon.	25 4 9	....	25 4 9	....	....	....	....	....	25 4 9
Sownk hair.	67 14 3	....	67 14 3	....	....	....	....	....	67 14 3

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Enumeration of Goods.	Quantity.			Value.		Duty.								Grand Total.			
	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Total.	Goods on which Duties had been paid.	Goods on which Duties had been remitted by the Government.	Total.	Duties paid.				Duties remitted.						
							In or Imposit.	Chowkee.	Total.	Huckdars and Zameen-dars.	Total.	In or Imposit.	Chowkee.		Total.	Huckdars and Zameen-dars.	Total.
TRANSIT DUTY.— continued.	P. M. S.	P. M. S.	P. M. S.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.	Ra. a. p.		
	4																
Collected at the Nakas of the following Vil- lages.																	
Jogashurree							47 2 6		47 2 6						47 2 6		
Saveta							79 7 0		79 7 0						79 7 0		
Chetagon							4 1 0		4 1 0						4 1 0		
Saketa																	
Karathan																	
Kusnair																	
Hoondakurree							159 3 0		159 3 0						159 3 0		
Cusba Jatra							97 0 9		97 0 9						97 0 9		
Salindoorwara Jutra							193 12 0		193 12 0						193 12 0		
Tota Jutra							145 7 6		145 7 6						145 7 6		
Sale of Cattle at Laka- gaon							115 0 0		115 0 0						115 0 0		
Wattigaon							60 0 0		60 0 0						60 0 0		
Peepulwarree							6 4 0		6 4 0						6 4 0		
Total Rupees							1,577 0 0		1,577 0 0						1,577 0 0		
Deduct annual fixed amount of Zameen- dar's Resewing on Transit Duties																	
							120 0 0		120 0 0						120 0 0		
Amount of Zameen- dar's Resewing on Transit Duties							1,557 7 0		1,557 7 0						1,557 7 0		
Total Rupees							1,557 7 0		1,557 7 6						1,577 7 0		

HYDERABAD AFFAIRS.

GENERAL ABSTRACT.

	Ra. a. p.	Ra. a. p.
Duty on Imports	7,831 12 6	
Weekly Bazar	698 13 3	
Neighbouring Villages	127 0 0	
Duty on Exports	11,886 5 6	
Abkaree Contract	1,174 0 0	
Sundry City Customs	1,553 9 6	
Transit Duties	1,677 7 0	
		24,448 15 1
DEDUCT.		
Duties remitted by the Government	916 13 3	
Huckdars and Zumeendars	2,273 5 3	
Stationery and Establishment	3,053 6 6	
		6,243 9 0
	Balance Chandore Rupees...	18,205 6 9

List of Towns and Villages in the Circar of Pytun, Soobah Aurungabad, Pytun Pergunna.

1 Kusbah Pytun.	45 Sonenapoor.	89 Sooltanpoor.
2 Maigaon.	46 Nurseepoor.	90 Khathgaon.
3 Punthawarree.	47 Brumhugohira.	91 Inayepoor.
4 Waghurree.	48 Maosagoban.	92 Bokoodjulgaon.
5 Gangulwarree.	49 Mahluxmee.	93 Girdah.
6 Dawarree.	50 Lambgohan.	94 Pangra.
7 Katpoor.	51 Savta.	95 Gazeepoor.
8 Narnia.	52 Yasegohan.	96 Cheecholee.
9 Linguthpooree.	53 Jogashurree.	97 Neelujgaon.
10 Talewarree.	54 Sooltanmahomedpoor.	98 Padlee.
11 Saegaon.	55 Sowakhaira.	99 Wurgohan—Burra.
12 Kowsun.	56 Lohgaon—Burra.	100 Wurgoban—Chota.
13 Ghurree.	57 Lohgaon—Chota.	101 Jamles.
14 Mahomedpoor.	58 Parola.	102 Bhosa.
15 Imallipoor.	59 Somepooree.	103 Poregaon.
16 Changudpooree.	60 Rahlmpoor.	104 Owa.
17 Sonewarree—Chota.	61 Hilhabad.	105 Kussarpnd'ee.
18 Sonewarree—Burra.	62 Dhoopkhaira.	106 Tanda—Burra.
19 Tandoolwarree.	63 Cheetagaon.	107 Tanda—Chota.
20 Patagaon.	64 Cowdgaon.	108 Wudalla.
21 Tarroopeepulwarree.	65 Tahlrpoor.	109 Yaseenpoor.
22 Munkapoor.	66 Tollapoor.	110 Donegaon.
23 Moolluneeewargaon.	67 Gurragaon.	111 Toopawarree.
24 Balapoor.	68 Dilnapoor.	
25 Oonchagaon.	69 Arungpoor—Burra.	
26 Umarpoor.	70 Babhoolgaon.	
27 Issurwarree.	71 Sakata.	
28 Shapoorwahigaon.	72 Lakagaon.	
29 Dhakaphul.	73 Nandlagaon.	
30 Kapooswarree.	74 Nimhajulgaon.	
31 Khamjulgaon.	75 Zinepoor.	
32 Gaverabasse.	76 Moholekhaira.	
33 Chowrbhatrjulgaon.	77 Sewnee.	
34 Taklee.	78 Allypoor.	
35 Dhugaon.	79 Udool—Burra.	
36 Shapoormanagaon.	80 Udool—Chota.	
37 Anundpoor.	81 Abdoolapoor.	
38 Agapoor.	82 Mooradabad.	
39 Kurrujkhaira.	83 Rouzapoor.	
40 Dianuthpoor.	84 Kurathan.	
41 Nansagaon.	85 Gaveras—Murda.	
42 Narraingon.	86 Waroundee—Chota.	
43 Wurroodee—Burra.	87 Ranjungaon.	
44 Singarwarree.	88 Paroundee.	

Jagheer Villages.

112 Wudwalee.
113 Gidarra.
114 Dadagaon.
115 Peepulwarree.
116 Tonedolee.
117 Moothulwarree.
118 Malvcheer.
119 Islampoor.
120 Kusnair.
121 Pooree.
122 Itawa.
123 Chennuckwarree.
124 Gopalwaghonda.
125 Boregaon.
126 Patondeewurgaon.
127 Aurungpoor—Chota.
128 Krlsnaapoor.

Dawurwarree Pergunna.

1 Kusbah Dawurwarree.	6 Poosagaon.	11 Dadagaon—Burra.
2 Dara.	7 Nandur.	12 Dadagaon—Chota.
3 Kootubkhaira.	8 Hursee—Burra.	13 Akuthwarra.
4 Sonewarree—Burra.	9 Sonewurree—Chota.	
5 Koundur.	10 Hursee—Chota.	

Saindoorwarra Pergunna.

1 Kusbah Saindoorwarrah.	5 Tandoolwarree.	9 Baroodee.
2 Shunkurpoor.	6 Pandhurbobul.	10 Sowpoor.
3 Aurungpoor.	7 Tullapeepree.	11 Maundwa Jaghee.
4 Augapoor.	8 Hursoolee.	

W. H. BRADLEY, Surgeon,
On Special Duty.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Table showing the Quantity of Live and Dead Stock in the Purgunnah of Saindoorwarrah.

1	2	3	4	5	6
	Designation.	Individual Value.	Quantity.	Value.	REMARKS.
		Rs. a. p.		Rs. a. p.	
	Bullocks	11 6 6	811	9,250 7 6	
	Cows	6 9 0	594	3,898 2 0	
	Calves		194		
	He-Bufferoes	8 12 6	21	184 6 6	
	She-Bufferoes	14 6 9	130	1,874 13 6	
	Calves		47		
	Total			15,207 13 6	
	Sheep	0 10 8	554	369 5 4	
	Goats	0 12 3	267	204 6 9	
	Total			573 12 1	
	Horses				
	Tattoos	14 12 8	70	1,035 6 8	
	Colts		10		
	Asses	11 4 8	54	609 12 0	
	Fowls	0 3 9	6	1 6 6	
	Total			1,646 9 2	
	Ploughs	2 8 0	154	385 0 0	
	Bakkur	3 8 0	315	1,102 8 0	
	Caris	17 4 2	72	1,212 12 0	
	Mhotes	4 1 7	10	40 15 10	
	Sugar Mills				
	Oil Mills	8 8 0	5	42 8 0	
	Sugar Boiler				
	Total			2,813 11 10	
	Grand Total			20,241 14 7	

Table showing the Amount of Principal Vegetable Produce, its Value, and Quantity of Land cultivated, in the Purgunnah of Saindoorwarrah, for 1846-47.

1	2	3	4
Designation.	Quantity of Land.	Quantity of Produce.	Value of Produce.
	Bghs. P. V.	Pullas. M. S.	Rs. a. p.
Sugarcane			
Wheat	1,185 0 0	322 0 0	1,288 0 0
Bajree	2,020 0 0	459 0 0	1,377 0 0
Jowarree	4,230 5 0	1,253 0 0	2,506 0 0
Gram	1,010 0 0	248 0 0	992 0 0
Toor	710 0 0	143 0 0	572 0 0
Kuldee		70 0 0	229 11 0
Tobacco	118 6 0	18 0 0	216 0 0
Moong	153 1 0	33 1 20	134 0 0
Tillee	70 0 0	11 0 0	70 0 0
Total	9,496 12 0		7,384 11 0

Average Prices of Grain for the last five Years in the Purgunnah of Saindoorwarrah.

Designation of several objects.	1847.	1846	1845.	1844.	1843.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Goor					
Wheat	4 0 0	5 8 0	4 8 0	3 8 0	3 0 0
Bajree	3 0 0	3 4 0	2 12 0	3 0 0	2 0 0
Jowarree	2 0 0	4 0 0	3 0 0	1 12 0	1 8 0
Gram	4 0 0	5 8 0	3 0 0	3 0 0	2 8 0
Toor	4 0 0	6 0 0	5 0 0	1 8 0	1 4 0
Tillee	5 0 0	6 0 0		4 0 0	
Kuldee	3 4 6	4 0 0	2 0 0	1 12 0	1 8 0
Tobacco	12 0 0	5 0 0	12 0 0	10 0 0	9 0 0
Moong	4 0 0	4 0 0	3 0 0	2 0 0	

W. H. BRADLEY, Surgeon,
On Special Duty.

HYDERABAD AFFAIRS.

Table showing the Division of the Population of the Purgunnah of Saindoorwarrah, according to Religious Persuasion, Profession and Calling.

Hindoos.	Amount.	Mahomedans.	Amount.
Brahmin	53	Shaik	47
Purdasee	3	Syed	3
Gosain	5	Mogul	7
Bunniya	30	Putthan	27
Bhat	1		
Jungum	1		
Koonhee	391		
Prabminjai	1		
Gooroo	2		
Sonn	3		
Burrhue	6		
Lohar	6		
Dhungur	10		
Hujjam	9		
Taile	21		
Kolee	3		
Bhose	12		
Dhobee	8		
Koombhar	2		
Tirmulles	5		
Bheel	2		
Chumbar	17		
Dhair	49		
Mang	13		
Total	653	Total	84

Table showing the Annual Consumption of Iron and Salt in the Purgunnah of Saindoorwarrah.

Designation.	Value by Weight.	From whence brought.	Quantity.			Value.	REMARKS.
IRON.							
Europe, 1st quality.	3 Seers	Bombay....	Pls.	M.	S.	Rs. a. p.	
			0	1	7	15 10 8	
Europe, 2nd quality.	6 Seers		3	2	0	73 5 4	
Native	5 Seers	Nirmull.....	1	2	2	40 6 4	
		Total...	5	2	9	129 6 4	
Salt	2 Dubboo Pysa per seer	Bombay and Bhewndy..	161	0	39	1,290 9 4	at $\frac{1}{2}$ of a seer per head.

Table showing Number of Sebundees and Sepahis employed in the Purgunnah of Saindoorwarrah.

	Suwas.	Foot.
Seebundees and Sepahis	16

Table showing State of Education in the Purgunnah of Saindoorwarrah.

SCHOOLS.		Pupils.	Persons able to read and write.
Persian.	Mahratta.		
.....	60

Table showing the Value of Rent of Land in the Purgunnah of Saindoorwarrah.

RENT.	Best.	Medium.	Inferior.	Worst.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Rate per Beegha	2 0 0	1 3 9	0 12 0	0 8 0	

W. H. BRADLEY, Surgeon,
On Special Duty.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Table showing the Quantity of Live and Dead Stock in the Purgunnah of Dawurwarree.

1	2	3	4	5	6
	Description.	Individual Value.	Quantity.	Value.	REMARKS.
Live Stock.		Rs. s. p.		Rs. s. p.	
	Bullocks	7 8 4	512	3,850 10 8	
	Cows	4 3 8	474	2,004 10 0	
	Calves		158		
	He-Bufferaloes	13 8 0	2	27 0 0	
	She-Bufferaloes	9 6 9	96	904 8 0	
	Calves		28		
	Total			6,786 12 8	
	Sheep	0 8 0	520	260 0 0	
	Goats	0 8 0	233	116 8 0	
Dead Stock.					
	Total			376 8 0	
	Horses				
	Tattoos	7 4 8	33	240 10 0	
	Colts		10		
	Asses	8 12 0	5	43 12 0	
	Fowls	0 3 3	13	2 10 3	
	Total			287 0 3	
	Ploughs	2 8 0	50	125 0 0	
	Bukkur	3 8 0	197	689 8 0	
	Carts	17 4 6	30	518 7 0	
	Mhotes	5 0 0	3	15 0 0	
	Sugar Mills				
	Oil Mills	7 0 0	6	42 0 0	
	Sugar Boiler				
	Total			1,389 15 0	
	Grand Total			8,840 3 11	

Table showing the Amount of Principal Vegetable Produce, its Value, and Quantity of Land cultivated, in the Purgunnah of Dawurwarree for 1846-47.

1	2	3	4
Designation.	Quantity of Land.	Quantity of Produce.	Value of Produce.
	B. P. S.	P. M. S.	Rs. a. p.
Wheat	282 0 0	61 0 0	305 0 0
Bajree	1,505 0 0	272 0 0	816 0 0
Jowarree	4,255 0 0	636 0 0	1,908 0 0
Gram	154 0 0	25 0 0	150 0 0
Toor	716 0 0	209 0 0	522 8 0
Kuldee	357 10 0	122 0 0	366 0 0
Total	7,269 10 0	.....	4,067 8 0

Average Price of Grain for the last Five Years in the Purgunnah of Dawurwarree.

Description of several objects.	1847.	1846.	1845.	1844.	1843.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Wheat	5 0 0	5 0 0	3 0 0	4 0 0	3 0 0
Bajree	3 0 0	3 0 0	2 8 0	1 12 0	1 8 0
Jowarree	3 0 0	4 0 0	2 8 0	1 8 0	2 0 0
Gram	6 0 0	7 0 0	4 0 0	3 0 0	2 0 0
Toor	2 8 0	3 0 0	1 12 0	1 8 0	1 4 0
Kuldeo	3 0 0	3 0 0	2 8 0	2 0 0	1 12 0

W. H. BRADLEY, Surgeon.
On Special Duty.

HYDERABAD AFFAIRS.

Table showing the Division of the Population of the Purgunnah of Dawurwaree according to Religious Persuasion, Profession and Calling.

Hindoos.	Amount.	Mahomedans.	Amount.
Brahmin	22	Shaik.....	21
Bunniya	21	Syed	12
Byragee and Gossin	4	Putthan	20
Kuesar	6		
Koonbee	400		
Brahminjal	8		
Durzee	3		
Sonar	5		
Burrahue	6		
Lehar	2		
Koombhar	2		
Dhungur	36		
Mangbhow	3		
Hujjam	5		
Kolee	2		
Tailee	11		
Goorow	2		
Dhobee	2		
Bunjara	1		
Bhoel	5		
Chamar	7		
Dhair	48		
Mang	14		
Total...	615	Total...	53

Table showing the Value of Rent of Land in the Purgunnah of Dawurwaree.

Rent.	Best.	Medium.	Inferior.	Worst.
Rate per Beegha	1 10 2	0 13 9	...	...

Table showing the Annual Consumption of Iron and Salt in the Purgunnah of Dawurwarree.

Designation.	Value by weight.	From whence brought.	Quantity.	Value.	Remarks.
IRON.			Pls. M. S.	Rs. a. p.	
Europe, 1st quality *...	3 Seers.	Bombay.....	0 0 19 $\frac{3}{4}$	6 9 4	
Europe, 2nd quality ...	6 do.	.....	1 1 23 $\frac{3}{4}$	30 10 0	
Native.	5 do.	Nirmull ..	0 1 24 $\frac{1}{4}$	12 13 7	
		Total...	2 0 27 $\frac{3}{4}$	50 0 11	
Salt	2 Dubboo Pysa per seer.	Bombay and Bhewady.	137 0 12	1,006 12 10	at $\frac{3}{4}$ of a seer per head.

Table showing Number of Seebundees and Sepahis employed in the Purgunnah of Dawurwarree.

	Suwaras.	Foot.
Seebundees and Sepahis.....	0	12

Table showing State of Education in the Purgunnah of Dawurwarree.

Schools.	Pupils.	Persons able to read and write.
Persian.		
Mahratta.		
...	...	22

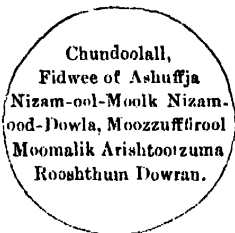
W. H. BRADLEY, Surgeon,
On Special Duty.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

*From the Mamlutdar of Purgunnah Pytun,
To the Mookuddum of the Village Wudwallee, Purgunnah Pytun.
Dated Sunn 1221 Fuslee,
A.D. 1821.*

The village Wudwallee was in former days given in Jagheer to Narrain Bhutt Showpooree of Pytun, who possesses a written grant of Badooshaw permitting him to appropriate its revenue from generation to generation; he has given his daughter in marriage into the family of Luximon Bowa Gosain of Pytun, and presented his Jagheer village together with its Sunnud for the maintenance of the latter's family, whereupon the son of the said Luximon Bowa, named Rungnauth Bowa, has come into the presence of Rajah Govind Buksh at Aurungabad with the Sunnud, and informed him of the circumstance, who has summoned the Mamlutdar of Pytun Purgunnah and informed him that the Sircar approves the grant of the village Wudwallee to Rungnauth bin Luximon Gosain of Pytun which had been made to him as expressed in the original Sunnud which he possesses, and I therefore direct you to permit him to appropriate the income of the village from generation to generation without requiring any further instructions on this subject. You are further directed to take copy of this for your records and give the original to the grantee.

Dated 11th Jumadiluwul.



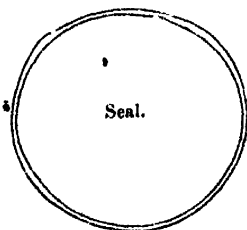
TRANSLATION OF AN ENAM SUNNUD.

*From Mohdour Row Bullal Pradhan.
To Nurhur and Gudadhur Gosains, Sons of Sewdeen Gosain.
Dated 11th Mohurram, Sukai 1692
A.D. 1770.*

AFTER COMPLIMENTS.

After taking into consideration the representation you have made before the Heozoor at Kusba Poonah, requesting the grant of a village under the Purgunnah of Pytun with an Enam Sunnud in lieu of the village Mouza Anunda, Purgunnah Baitawud, in the Zillah of Khandeish, that had been granted as an Enam Jagheer to your father Sewdeen Gosain with permission to appropriate its revenue and the allowances of Sirdeshmook and Baptee with the exception of the Mokassa share on account of its remote situation from Pytun, the Sircar hereby grants you the village of Mouza Giddara, Purgunnah Pytun, in the place of the said village Mouza Anunda, Purgunnah Baitawud, Zillah Khandeish, as an Enam Jagheer, with permission to receive its revenue; with its bunds and wells for irrigation, trees, runnas, woods, hills and streams, &c., belonging to that village, with the exception of the allowances of Baptee, Sirdeshmook, and other hucks and Enams, and the Mokassa share; you are accordingly, in the manner above specified, to appropriate it to yourself, your sons and their sons, which shall descend from generation to generation.

Scaled by order.



HYDERABAD AFFAIRS.

To the Deshmook, Sirdeshpandee, Deshpandee, Mookuddum Putwarree, Cultivators, Ryots of Havalee Pytun, Purgunnah Pytun, Circar Pytun, Soobah Aurungabad.

I hereby grant by order of Government the village Dadagaon, Purgunnah Pytun, annually yielding 797 rupees, and the 4th share of Swaraj as Jagheer to Rungnauth Bowa, the son of Luximon Bowa Gosain, on account of expenses incurred by his Mhutt at Pytun, from this 1238th year of Fuslee, A.D. 1828. You are therefore directed to allow him to receive the annual revenue as above mentioned from generation to generation, and are to act accordingly.

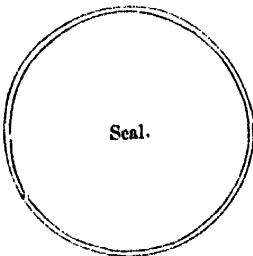
Dated 17th Rujub Sunn, 1244 Hizree,
A.D. 1828.



To the present and future Officers of Government, Purgunnah Havellee Pytun, Circar Pytun, Soobah Aurungabad.

The situation of examining the Badla, and gold and silver wire in the Pytun Purgunnah, the allowances of which are the same as at Aurungabad, was first held by Peesa wullud Madow by a Sunnud granted to him, his sons and grandsons, but for the last 7 or 8 years it has been brought under the management of Government on account of disputes arising between the descendants of Peesa wullud Madow. Biswanath, the great-grandson of the first holder, he has this day appeared before the Circar and showed the original, which satisfying the Sircar has appointed him in the aforesaid situation on the usual allowances in order that he may perform the duties more satisfactorily and profitably to Government and agreeably to traders. You are therefore directed to place him in that situation and continue the same to himself and his offspring, without allowing any others to participate in his allowances.

Dated 16 Shaban Sunn, 1240 Hizree,
or A.D. 1824.



W. H. BRADLEY, Surgeon,
On Special Duty.

Amount of Fees and Allowances paid to Village Officers annually in the Circar of Pytun, Soobah Aurungabad.

PYTUN PURGUNNAH.

No. 1, Kusba Pytun.

Deshmook	...	72	Rupees and 15 Annas, and 120 Beeghas.
Sir Deshpandee	...	25	Rupees.
Deshpandee	...	52	Rupees and 1 Anna, and 120 Beeghas.
Morrel	...	8	Rupees.
Patail	...	400	Beeghas—and sundry allowances of Grain, &c.
Putwarree	...	50	Rupees, and 50 Beeghas.
Cauzy Futtoolla	...	137	Beeghas.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 2, Maigaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	25	Rupees, and 1 Seer of Grain per Beegha.

No. 3, Punthawaree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	29	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	32	Rupees, and 1½ Maund of Grain per Khundee, and 30 Beeghas.
Cauzy	...	60	Beeghas.

No. 4, Wagharree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain.
Putwarree	...	10	Rupees, and 20 Seers of Grain per Khundee.

No. 5, Gungalwarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	2	Seers of Grain per Beegha.
Putwarree	...	20	Rupees, and 20 Seers of Grain, per Khundee.

No. 6, Dawurwarree.

Deshmook	...	5	Rupees.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas.
Putwarree	...	20	Rupees, and 20 Seers of Grain per Khundee.

No. 7, Katpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	20	Rupees, and 20 Seers of Grain per Khundee.

No. 8, Narala.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 20 Seers Grain per Khundee.

No. 9, Linguthpooree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain.
Putwarree	...	1	Rupee, and 1 Maund of Grain per Chahoor, and also 10 Seers per Khundee of Grain.
Dhairs	...	½	Pysa per Pulla of Grain.

HYDERABAD AFFAIRS.

No. 10, Talewarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas.
Putwarree	...	20	Rupees, 30 Beeghas, and 20 Seers of Grain per Khundee.

No. 11, Saegaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	34	Beeghas, and 1 Pulla of Grain per Chahoor.
Putwarree	...	20	Rupees, 16 Beeghas, and 1 Pulla of Grain per Chahoor.

No. 12, Kowson.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain.
Putwarree	...	30	Rupees, and 20 Seers Grain per Khundee.

No. 13, Gharree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint and 120 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 2 Rupees Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 2 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain, and 60 Beeghas, and 24 Seers of Grain per Khundee.
Putwarree	...	30	Beeghas, and 10 Seers of Grain per Khundee, and 1 Rupee and 1½ Maund per Chahoor.
Cauzy	...	60	Beeghas.

No. 14, Mahomedpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	40	Beeghas, and 20 Seers of Grain per Khundee.
Putwarree	...	1	Rupee, 1 Maund, and 10 Seers of Grain per Chahoor, and 10 Seers per Khundee, and 20 Beeghas.

No. 15, Ismailpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	20	Beeghas, and 24 Seers of Grain per Khundee, and 1 Pysa per Pulla of Grain exported.
Putwarree	...	25	Rupees, and 10 Beeghas, and 1 Pulla of Grain per Chahoor.
Dhairs	...	½	Pysa per Pulla of Grain.

No. 16, Changudpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, 1 Seer of Grain per Beegha, 1 Pysa per Pulla of Grain exported.
Putwarree	...	25	Rupees and 16 Beeghas, and 1 Pulla of Grain per Chahoor.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 17, Sonewarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint, and 60 Beeghas.
Morrel	...	4	Rupees.
Patail	...	20	Beeghas.
Putwarree	...	10	Beeghas.

No. 18, Sonewarree (Burra).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	25	Beeghas.
Putwarree	...	1	Rupee, and 1 Maund Grain per Chahoor, and 10 Seers Grain per Khundee.

No. 19, Tandoolwarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint, and 60 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 12 Seers Grain per Khundee.
Putwarree	...	60	Beeghas, and 15 Rupees, and 15 Seers Grain per Khundee.

No. 20, Patagoon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	90	Beeghas.
Putwareo	...	1	Rupee per each field.

No. 21, Tarroopeepulwarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint, and 30 Beeghas.
Morrel	...	4	Rupees.
Patail	...	105	Rupees [? Beeghas], and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and 1 Maund and 20 Seers of Grain per Khundee.

No. 22, Mankapoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	76	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	10	Rupees.

No. 23, Moonlanewargaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	20	Rupees and other allowances.

No. 24, Balapoor.

Deshmookh	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	72	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	10	Rupees.

HYDERABAD AFFAIRS.

No. 25, Oonchagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain, and 10 Seers of Grain per Khundee.
Putwarree	...	1	Rupee per Chahoor, and 1 Maund and 30 Seers of Grain per Khundee.
Dhairs	...	¼	Pysa per Pulla of Grain.

No. 26, Umrappoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	50	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	40	Rupees, and some other allowances of Grain.
Cauzy of Pytun	...	120	Beeghas.

No. 28, Shapoorwahigaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	20	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	10	Rupees.

No. 29, Dhakaphul.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	32	Rupees, and one Maund of Grain per Khundee.

No. 30, Kapoosswarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	40	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	40	Rupees, and 20 Seers Grain per Khundee.

No. 31, Khamjulgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.

No. 32, Gaveraebassee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	40	Rupees, and 20 Seers of Grain per Khundee.

No. 33, Chowrhiaturjulgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	150	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	32	Rupees.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 34, Taklee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	173	Beeghas and 8 Punds, 1 Maund of Grain per Chahoor, and 1 Pysa per Pulla.
Dhairs	...	½	Pysa per Pulla.

No. 35, Dhungaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	20	Beeghas.
Putwarree	...	20	Rupees.

No. 36, Shapoormanagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas.
Putwarree	...	10	Rupees.

No. 37, Anundpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	50	Rupees.

No. 38, Agapoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per each Pulla of Grain.
Putwarree	...	15	Rupees.

No. 39, Kurrunkhaira.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and one Pysa per Pulla of Grain.
Putwarree	...	20	Rupees.

No. 40, Dinanathpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and one Pysa per Pulla of Grain.
Putwarree	...	25	Rupees.

No. 41, Nanagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Patail	...	60	Beeghas.
Putwarree	...	25	Rupees.

No. 42, Narraingaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1½	Maund per Chahoor, and 1 Pysa per Pulla of Grain.
Putwarree	...	32	Rupees, and 20 Seers of Grain per Khundee.
Dhairs	...	½	Pysa per Pulla of Grain.

HYDERABAD AFFAIRS.

No. 43, Wurroodee (Burra).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	25	Rupees, and other allowances of Grain, &c.

No. 44, Singarwarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	25	Rupees.

No. 45, Sonenapoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	80	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	100	Rupees.

No. 46, Nurseepoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee, and 25 Seers of Grain per Chahoor.

No. 47, Brahmagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	100	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee, and 25 Seers per Chahoor.
Dhairs	...	½	Pysa per Pulla of Grain.

No. 48, Maoossgohan.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee, and 25 Seers of Grain per Chahoor.

No. 49, Mahluxmee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee, and 20 Seers of Grain per Pulla.

No. 50, Lambgohan.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee, and 25 Seers of Grain per Chahoor.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 51, Sancta.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	50	Beeghas, and other allowances of Grain.

No. 52, Yasegohan.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee, and 25 Seers of Grain per Chahoor.

No. 53, Jogashurree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	40	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee per Chahoor, and 25 Seers per Pulla.

No. 54, Sooltannahomedpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	90	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	1	Rupee, and 25 Seers of Grain and 1 Pysa per Pulla.

No. 55, Sowukhaira.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	90	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per cent. and 25 Seers of Grain per Chahoor.

No. 56, Lohgaon (Burra).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and 30 Seers of Grain and 8 Annas per Pulla of Grain, and 60 Beeghas.

No. 57, Lohgaon (Chota).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint and 60 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee, and 30 Seers Grain per Chahoor.

No. 58, Parola.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per each field, and 1½ Seers of Grain per Beegha.

HYDERABAD AFFAIRS.

No. 59, Somepoorree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	10	Beeghas, and 1 Maund of Grain per Khundee, and 1 Pysa per Pulla of Grain.
Putwarree	...	25	Rupees, and 1 Maund of Grain per Khundee.

No. 60, Rahimpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	40	Beeghas.
Putwarree	...	10	Rupees, and 30 Secrs of Grain per Khundee.

No. 61, Hillhabad.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and other allowances of Grain, &c.

No. 62, Dhoopkhaira.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	20	Rupees, and 1¼ Secrs of Grain per Khundee.

No. 63, Cheetagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	18	Rupees, and some other allowances of Grain.

No. 64, Cowdgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Putwarree	...	60	Beeghas, and 1 Pysa per Pulla of Grain.

No. 65, Tahirpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Rupees, and 1 Pysa per Pulla of Grain.
Putwarree	...	10	Rupees, and some other allowances of Grain.

No. 66, Toolapoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	40	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 67, Garragaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	35	Rupees, and some other allowances of Grain.

No. 68, Dilnapoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	17	Rupees, and some other allowances of Grain, &c.

No. 69, Arungpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain, &c.

No. 70, Babhoolgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	20	Rupees, and some other allowances of Grain.

No. 71, Saketa.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and other allowances of Grain.

No. 72, Lakagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	80	Beeghas, and one Pysa per Pulla of Grain, and 20 Seers of Grain per Khundee.
Putwarree	...	35	Rupees annually, and 20 Seers per Khundee.

No. 73, Nandlagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and one Pysa per Pulla of Grain.
Putwarree	...	60	Beeghas, and 20 Seers of Grain from each field.
Dhairs	...	40	Beeghas.

No. 74, Nimbajulgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	75	Beeghas, and some other allowances of Grain, &c.
Putwarree	...	30	Beeghas, and some other allowances of Grain.

HYDERABAD AFFAIRS.

No. 75, Zinepoor.

Deshmook	...	3½ Rupees per cent. on Revenue, and 1 Pysa per Pull of Grain.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and one Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	40 Beeghas, and 1 Pysa per Pulla.
Putwarree	...	25 Rupees, and some other allowances of Grain, &c.

No. 76, Mohulkhaira.

Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	4 Rupees.
Patail	...	30 Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	60 Rupees, and 1½ Seers of Grain per Khundec.

No. 77, Serweree.

Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	12 Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	

No. 78, Allypoor.

Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	40 Beeghas.
Putwarree	...	15 Rupees, and 2 Seers of Grain per Khundec.
Dhairs	...	20 Beeghas.

No. 79, Udool (Burra).

Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	250 Beeghas Enam.
Putwarree	...	50 Rupees, and 20 Seers of Grain per Khundec.

No. 80, Udool (Chota).

Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	45 Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	25 Rupees.

No. 81, Ubdoollapoor.

Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	3 Beeghas, and 1 Pysa per Pulla.

No. 82, Moradabad.

Deshmook	...	3½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1 Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½ Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4 Rupees.
Patail	...	60 Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	20 Rupees, and 20 Seers of Grain per Khundec.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 83, Ruzapoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	25	Rupees, and 25 Seers of Grain per Khundee.

No. 84, Kurathan.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Despandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	40	Rupees, and 20 Seers Grain per each Khundee.

No. 85, Gaveraee Murda.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	20	Rupees, and 20 Seers of Grain per Khundee.

No. 86, Wuroundee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, 1 Pysa per Pulla of Grain.
Putwarree	...	25	Rupees, and 20 Seers per Khundee of Grain.

No. 87, Rajungaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas.
Putwarree	...	10	Rupees, and one Rupee per each field.

No. 88, Paroundee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	15	Beeghas, and 25 Rupees, and 20 Seers of Grain per Khundee.

No. 89, Sooltanpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	20	Beeghas.
Putwarree	...	10	Rupees, and 10 Beeghas, and 20 Seers of Grain per Khundee.

No. 90, Khathgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	150	Beeghas.
Putwarree	...	40	Rupees.

HYDERABAD AFFAIRS.

No. 91, Inayetpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas.
Putwarree	...	16	Rupees, and some other allowances of Grain, &c.

No. 92, Bokoodgjalgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	21	Rupees, and 20 Seers Grain per Khundee.

No. 93, Girnair.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 17½ Seers of Grain per each Khundee.
Putwarree	...	25	Rupees, and 20 Seers of Grain per Khundee.

No. 94, Pangra.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain, and 1 Maund of Grain per Khundee.
Putwarree	...	16	Rupees.

No. 95, Gazeepoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	16	Rupees, and 20 Seers per Khundee of Grain.

No. 96, Cheecholee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	16	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	16	Rupees, and 1½ Maunds of Grain per each field.

No. 97, Neelujgaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	125	Beeghas, and 2 Rupees per each field.
Putwarree	...	1	Rupee per Chahoor, and a Seer of Grain per Rupee.

No. 98, Padlee.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	90	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	25	Rupees, and 20 Seers Grain per Khundee.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 99, Wurgohan (Burra).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	90	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	16	Rupees, and 20 Seers of Grain per Pulla.

No. 100, Wurgohan (Chota).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	..	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	35	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	..	16	Rupees, and 20 Seers of Grain per Khundee.

No. 101, Jamlee.

Deshmook	..	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	90	Beeghas, and 1 Pysa per Pulla.
Putwarree	..	24	Rupees, and 1½ Seers of Grain per Rupee.

No. 102, Bhosa.

Deshmook	..	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	..	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	50	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	..	25	Rupees.

No. 103, Porigaon.

Deshmook	..	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	..	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	..	16	Rupees, and 20 Seers per Khundee of Grain.

No. 104, Owa.

Deshmook	..	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	..	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	20	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	..	10	Rupees, and some other allowances of Grain, &c.

No. 105, Kussarpadlee.

Deshmook	..	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	..	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	..	10	Rupees.

No. 106, Thanda (Burra).

Deshmook	..	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	..	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	..	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	..	4	Rupees.
Patail	..	60	Beeghas.
Putwarree	..	2	Rupees per Chahoor.

HYDERABAD AFFAIRS.

No. 107, Thanda (Chota).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	14	Begghas.
Putwarree	...	2	Rupees per Chahoor.

No. 108, Wudalla.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	60	Begghas.
Putwarree	...	10	Rupees, and some other allowances of Grain, &c.

No. 109, Yaseenpoor.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	18½	Begghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	10	Rupees.

No. 110, Donegaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	65	Begghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	40	Rupees, and 20 Seers Grain per Khundee.

No. 111, Toopawarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	36	Begghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	21	Rupees, and some other allowances of Grain, &c.

No. 112, Wudwalce.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain.
Putwarree	...	30	Rupees, and 20 Seers Grain per Khundee.

No. 113, Gidarra.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	5	Seers of Grain per Khundee, and 1 Pysa per Pulla.
Putwarree	...	21	Rupees, and 5 Seers of Grain from each field and 1½ Maunds of Grain per Pulla.

No. 114, Dadagaon.

Deshmook	...	58	Rupees.
Sir Deshpandee	...	6	Rupees.
Deshpandee	...	39	Rupees.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	30	Rupees.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 115, Peepulwarree.

Deshmook	...	} These District officers are paid sums of money annually by the Jagheerdar as may be agreed upon.
Sir Deshpandee	...	
Deshpandee	...	
Morrel	...	
Patail	... 120	Beeghas, and 1 Pysa per Pulla.
Putwarree	... 60	Rupees, and 1 Pysa for each Thrashing-yard.

No. 116, Tondolee.

Deshmook	... 75	Rupees.
Sir Deshpandee	... 8	Rupees.
Deshpandee	...	} 58½ Rupees.
Morrel	...	
Patail	... 1	Pysa per Pulla of Grain, and 5 Seers of Grain for each Thrashing-floor.
Putwarree	... 32	Rupees.

No. 117, Moondulwarree.

Deshmook	... 58	Rupees.
Sir Deshpandee	... 7	Rupees.
Deshpandee	... 43	Rupees.
Morrel	... 4	Rupees.
Patail	... 30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	... 25	Rupees, and 25 Seers of Grain per Khundee.

No. 118, Malveheer.

Deshmook	... 42	Rupees.
Sir Deshpandee	... 8½	Rupees.
Deshpandee	... 31	Rupees.
Morrel	...	None.
Patail	... 120	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	... 32	Rupees, and 2 Seers of Grain per Khundee.

No. 120, Islampoor.

Deshmook	...	} 10 Rupees.
Deshpandee	...	
Morrel	...	
Sir Deshpandee	... 1½	Rupees.
Patail	... 60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	... 10	Rupees, and 20 Seers of Grain per Khundee.

No. 120, Kussnair.

Deshmook	... 30	Rupees.
Sir Deshpandee	... 17	Rupees.
Deshpandee	... 30	Rupees.
Morrel	... 2	Rupees.
Patail	... 250	Beeghas.
Putwarree	... 40	Rupees, and 20 Seers of Grain per Khundee.

No. 121, Pooree.

Deshmook	... 268	Rupees.
Sir Deshpandee	... 1	Rupee per cent. and 1 Rupee Bhaint.
Deshpandee	...	} 12 Rupees.
Morrel	...	
Patail	... 60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	... 22	Rupees, and 1 Maund of Grain per hundred Beeghas.

No. 122, Ottawa.

Deshmook	...	} 12 Rupees and 12 Annas.
Sir Deshpandee	...	
Deshpandee	...	
Morrel	...	
Patail	... 24	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	... 5	Rupees, and 20 Seers of Grain.

HYDERABAD AFFAIRS.

No. 123, Chennukbarree.

Deshmook	...	80	Rupees.
Sir Deshpandee	...	10	Rupees.
Deshpandee	...	} 5½	Rupees.
Morrel	...		
Patail	...	40	Beeghas, and 15 Seers of Grain per Khundee, 2½ Rupees per cent. on Revenue, and 20 Seers of Grain per Khundee of the produce from the Enam land.
Putwarree	...	32	Rupees, and 5 Rupees Sarpao, and 20 Seers of Grain per Khundee.

No. 124, Gopalwaghonce.

Deshmook	...	}	These District officers are paid sums of money annually by the Jagheerdar as may be agreed upon.
Sir Deshpandee	...		
Deshpandee	...		
Morrel	...		
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	1	Rupee, and 1½ Maunds of Grain per Chahoor.

No. 125, Boregaon.

Deshmook	...	}	These District officers are paid sums of money annually by the Jagheerdar as may be agreed upon.
Sir Deshpandee	...		
Deshpandee	...		
Morrel	...		
Patail	...	1	Pysa per Pulla.
Putwarree	...	15	Rupees, and 30 Seers of Grain per Khundee.

No. 126, Patoondeewurgaon.

Deshmook	...	}	These District officers are paid sums of money annually by the Jagheerdar as may be agreed upon.
Sir Deshpandee	...		
Deshpandee	...		
Morrel	...		
Patail	...	1	Pysa per Pulla of Grain, and 60 Beeghas.
Putwarree	...	16	Rupees, and 20 Seers of Grain per Khundee.

No. 127, Aurungpoor.

Deshmook	...	}	These District officers are paid sums of money annually by the Jagheerdar as may be agreed upon.
Sir Deshpandee	...		
Deshpandee	...		
Morrel	...		
Patail	...	45	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	13	Rupees, and 1 Maund of Grain per Khundee.

No. 128, Krishnapoor.

Deshmook	...	}	These District officers are paid sums of money annually by the Jagheerdar as may be agreed upon.
Sir Deshpandee	...		
Deshpandee	...		
Morrel	...		
Patail	...	40	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	20	Beeghas.

SAINDOORWARRAH PURGUNNAH.

No. 1, Kusbah Saindoorwarrah.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	40	Rupees.

No. 2, Shunkurpoor.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	2	Rupees.
Patail	...	1	Pysa per Pulla of Grain.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain, &c.

No. 3, Aurungpoor.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	2	Rupees.
Patail	...		None.
Putwarree	...	15	Rupees.

No. 4, Nagapoor.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...		None.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain, &c.

No. 5, Tandoolwarree.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...	60	Beeghas.
Putwarree	...	20	Rupees, and some other allowances of Grain, &c.

No. 6, Pandurhohul.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pula.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain, &c.

No. 7, Tullapeepree.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...		None.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain, &c.

No. 8, Hurzoolce.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...		None.
Putwarree	...	1	Rupee per Chahoor, and 1 Rupee Bhaint.

No. 9, Barroodce.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Putwarree	...	1	Rupee per Chahoor, and some other allowances of Grain, &c.

No. 10, Sewpoo.

Deshmook	...	2½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	1½	Rupees per cent. on Revenue, and 1 Rupee Bhaint.
Morrel	...	3	Rupees.
Patail	...	}	None.
Putwarree	...		

HYDERABAD AFFAIRS.

No. 11, Maundwa.

Deshmook	...	}	Received no allowance.
Sir Deshpandee	...		
Deshpandee	...		
Morrel	...		
Patail	...	60	Beeghas.
Putwarree	...	20	Rupees, and some other allowances of Grain.

DIHAWURWARREE PURGUNNAH.

No. 1, Kusbah Dhawurwarree.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint, and 60 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 2 Rupees Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint, and 60 Beeghas.
Morrel	...	4	Rupees.
Patail	...	60	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	125	Rupees, and 2 Maunds of Grain per Chahoor.
Razec	...	500	Beeghas.

No. 2, Dara.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint, and 600 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	2	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla of Grain.
Putwarree	...	4½	Rupees, and some other allowances of Grain.

No. 3, Khootub Khaira.

Deshmook	...	3½	Rupees per cent. on Revenue, 5 Rupees Bhaint, and 60 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 2 Rupees Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	2	Rupees.
Patail	...	40	Beeghas, and one Pysa per Pulla of Grain.
Putwarree	...	45	Rupees, and some other allowances of Grain.

No. 4, Somwarree (Burra).

Deshmook	...	3½	Rupees per cent., and 5 Rupees Bhaint, and 60 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. and 2 Rupees Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain.
Putwarree	...	4	Rupees.

No. 5, Kounder.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, 5 Rupees Bhaint, and 20 Beeghas.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	30	Rupees, and some other allowances of Grain.

No. 6, Poosagaon.

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	25	Rupees, and some other allowances of Grain.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

No. 7, Nandur.

Deshmook	...	3½	Rupees per cent. on Revenue, 5 Rupees Bhaint, and 120 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 2 Rupees Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	120	Rupees, and some other allowances of Grain.

No. 8, Hursee (Burra).

Deshmook	...	3½	Rupees per cent. on Revenue, 5 Rupees Bhaint, and 30 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 2 Rupees Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla of Grain.

No. 9, Sonewarree (Chota).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	30	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	20	Rupees, and some other allowances of Grain.

No. 10, Hursee (Chota).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	30	Rupees.

No. 11, Dadagaon (Burra).

Deshmook	...	3½	Rupees per cent. on Revenue, 5 Rupees Bhaint, and 50 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	40	Beeghas Enam, and 1 Pysa per Pulla.
Putwarree	...	50	Rupees.

No. 12, Dadagaon (Chota).

Deshmook	...	3½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	1	Pysa per Pulla.
Putwarree	...	10	Rupees.

No. 13, Akuthwarree,

Deshmook	...	3½	Rupees per cent. on Revenue, 5 Rupees Bhaint, and 125 Beeghas.
Sir Deshpandee	...	1	Rupee per cent. on Revenue, and 1 Rupee Bhaint.
Deshpandee	...	2½	Rupees per cent. on Revenue, and 5 Rupees Bhaint.
Morrel	...	4	Rupees.
Patail	...	50	Beeghas, and 1 Pysa per Pulla.
Putwarree	...	50	Rupees.

W. H. BRADLEY, Surgeon,
On Special Duty.

APPENDIX A.

The following are the names of all the various Religious Buildings belonging to the Hindoos and Mahomedans, with the amount of the gifts and endowments by which they are supported.

HINDOO RELIGIOUS EDIFICES.

1. Muth of Kaunmun Bowa.
One Rupee from each village in the Pytun Purgunnah Fourteen Rupees from Custom duties annually.
2. Temple of Ramchunder.
One Rupee daily from custom duties.
3. Bhudrakalee Davee.
One Rupee daily from custom duties, 16 Rupees and 5 seers of oil from Sayer duties for expenses incurred at the Dusseerah.
4. Muth of Gungabace near Rungarhuttee.
One maund of wheat and 14 Rupees from Sayer duties.
5 Rupees from river produce annually.
5. Muth of Ball Ling.
One Rupee from Sayer annually.
6. Muth of Ballajee in the house of Raghoba Bowa.
Enam lands under the Kusba of Pytun.
7. Doorga Davee.
One Pice and a half daily from Sayer, 2 Rs. and 5 seers of oil from Custom duties for the Dusseerah festival.
8. Koocharwata Nagoba.
5 Seers of ghee and 2 seers and a half of oil from Sayer annually.
9. Temple of Rainooka Davee.
One Pice daily from Sayer dues, 2 Rs. and 5 seers of oil from Sayer yearly, 3 $\frac{3}{4}$ seers of oil monthly for supply of lamp burning night and day in the temple from Sayer dues.
10. Muth of Sewdeen Bowa.
2 Pice daily from Sayer dues, three villages, Gidaira, Wudalee, and Dadagaon in the Pytun Purgunnah in Enam.
11. Aneerooshee Bowa.
4 Annas at the Dusseerah feast from Land Revenue.
4 Annas for the Dewalee from Land Revenue.
4 Annas from each new Naib.
12. Nursinhwa.
2 Seers of oil annually and 2 $\frac{1}{2}$ Pice daily from Sayer dues.
13. Temple of Sudda Vittoba.
1 $\frac{1}{2}$ Seers of Bajree daily from Sayer.
14. Siddhaswur Mahadeo.
Jagheer villages in Company's territories.
15. Temple of Sree Luxmee Narrain.
3 $\frac{3}{4}$ Seers of oil monthly from Sayer.
16. Temple of Indraswur Mahadeo.
2 Seers of oil from Sayer monthly.
17. Temple of Nagoba near Nag Ghaut.
One Rupee annually from Sayer.
18. Shrine of Eknauth.
3 Villages in Jagheer.
3 Rupees monthly for lights constantly burning, with one khundy of wheat, and 50 Rupees from Land Revenue, for the expenses of annual fair in March.
One Rupee half-yearly from Sayer dues, for Palanquin allowances incurred for travelling to Punderpoor.
5 Rupees from Land Revenue.
5 Rupees from Sayer annually for night Religious ceremonies.
The Mokassa share of villages.
19. Temple of Ramaswur.
2 Seer of oil monthly from Sayer.

20. Temple of Dholaswur.
One Rupee monthly from Sayer.
21. Temple of Gunputtee Nag Ghaut.
2 Seers of oil monthly from Sayer.
22. Temple of Marootee near Paunch Peepul.
5 Seers of ghee annually from Sayer.
23. Muth of Kasseenauth Bowa.
3 Maunds of Rice annually from Sayer.
24. Muth of Gungabae.
1½ Maund of Rice annually from Sayer.
25. Muth of Nithianund.
Rupees 39 annually from Sayer dues.
26. Muth of Gungabae near Nag Ghaut.
Rupees 6 yearly from Sayer.

In addition to the above, there are thirteen other Temples and Shrines for whose preservation no funds are provided, and which are preserved by the pious care of private individuals.

The Jains have a temple in the suburbs containing the twenty-four Tirthanakara, associated with one or two Brahminical deities.

MAHOMEDAN RELIGIOUS BUILDINGS.

The Shrines of Moulana Sahib a Mahomedan Saint of great repute as well as that of Naija Sahib are held in most respect amongst Mahomedans, and are endowed with lands for their support ; of the places of worship there are but five kept in order whilst as many as twenty-eight are in a state of disrepair, more or less no provision being made for them ; the following is a detailed account of the Mahomedan Religious Buildings that enjoy endowments :—

1. Musjid Talim Unkureeb.
2 Seers of oil for Mohurrum from Sayer.
2. Musjid Peer Babra.
Rupees 2 from Sayer duties annually.
3. Musjid near Naikwarree.
1 Rupee annually from Land Revenue.
4. Musjid Mookhairree.
Rupees 2 from Land Revenue for Mohurrum.
5. Musjid Dustageer Syed Sadad.
Rupees 2 from Land Revenue for Mohurrum.
Rupees 4 annually from Sayer dues for the annual expenses of the fair.
6. Musjid Bhagwan.
2 Rupees annually from Land Revenue.
7. Chand Khan Wulec Durgah.
1 Rupee for Dussera and 1 Rupee for Dewallee from Land Revenue.
14 Rupees annually from Sayer dues.
One Rupee from each new Naib.
8. Peerpunchode.
One Rupee monthly, 5 seers of oil and 5 seers of ghee annually from Sayer.
9. Huthia Sahib.
Rupees 2 from Land Revenue.
Rupee 1 from Sayer for Mohurrum.
10. Moulana Sahib Durgah.
Rupees 7 annually from Sayer and Lands in Enam.
11. Naija Sahib Durgah.
1 Rupee from Sayer.
1 Rupee and 10 seers of oil from Land Revenue for Mohurrum.
Enam Lahds are granted also in Pytun Purgunnah.

W. H. BRADLEY, Surgeon,
On Special Duty.

ROCK CUT CAVES OF AURUNGABAD.

In the hills north of Aurungabad, and within half an hour's walk of its walls, are seen some ruined Buddhist and Jain Cave Temples, half concealed amidst fallen rocks and earth ; much of the sculpture still remains in tolerable preservation, and gives a pleasing idea of what the state of the arts were in this country, where now nothing of the sort exists. The temples have been wrought in the same table land that contains the Caves of Elloora, a reason in all probability for their not having been more generally known, by proving little attractive after the exploration of those wonderful "Chambers of Imagery." If the object indeed be mere curiosity that prompts their examination, the chances are very probably disappointment will ensue ; but if visited with a higher aim, their monumental evidences will not be found void of interest. Since the master mind of the lamented Prinsep breathed life into the dry bones of Buddhist research by the ingenious process he devised of decyphering the Cave inscriptions, this particular field of antiquarian investigation has been invested with singular interest, and has excited the industry and intellect of many of our eminent literati : whilst another class of investigators no less enthusiastic, have entered upon the study more in reference to the peculiarities of style in sculpture and architecture, than to the characters of the inscriptions ; but it is sufficiently obvious, however, that the union of both modes of research is absolutely requisite, to justify an opinion upon the much vexed question of Buddhist Chronology. The graphic delineations of Sykes, Mallet, Bird, and Kittoe, with the beautifully illustrated descriptions of Fergusson, so recently before the public, have made us in some degree familiar with the principal Buddhist fanes in central and western India.

The hills in which the caves we are about to describe have been dug, are amygdaloid trap, of varying degrees of induration, and rising at their highest points to about 700 feet above the plains ; their southern slopes are invariably precipitous and barren-looking, the only covering they possess, being a straggling vegetation of low prickly bushes, and stunted shrubs. It is this aspect that has been selected as the sites for the caves, and is consequently by no means remarkable for picturesque properties, a circumstance not often found wanting in the localities fixed upon by these old Buddhist monachists. A whitened mark in the sides of the hill, about two-thirds up the ascent indicates the spot where the caves are to be found ; this is a small Jain cave, kept whitewashed by the Devotees of the city—the remainder are rendered more or less inconspicuous, by jungle bushes, and rubbish obstructing the view. The caves form three separate groups, scattered over a space of about a mile and a half, and are eleven in number. With the exception of the small Jain cave just alluded to, they all come under the denomination of Vihara, or Monastery Caves, accompanied by the usual waggon-vaulted cave, containing the Deghopa ; their general characteristics unmistakably denoting a period, when Buddhism was fast declining from its high estate, and had stooped to a temporising policy, apparent in the absence of that simplicity which marked its purer and dominant period : the figure of Buddha is to be seen associated with Buddhist Saints, or in a position the most opposed to that of mental abstraction, being represented in amatory dalliance, with scantily robed females ; again figures essentially brahminical are admitted into the temple, associated not unfrequently with orphic symbols, to which may also be adduced a florid style of carving, as further proof of a later period of Buddhism. There is but one cave indicating any great antiquity, where Buddha is represented of gigantic proportions reclining on his side, obtaining beatitude by absorption into the essence of the deity ; a state known as Nirvani, or Nirbuthi. We note a peculiarity observed in isolating the sanctum from the walls by a passage passing round, containing chapels and lateral cells for the priesthood ; this is not the usual form of arrangement, and I remember but one instance of it at Elloora ; at Ajuntah it does not once occur : cutting off the sanctum by a passage in this manner, is however frequently adopted in the Jain and Brahminical caves, at the former place. Stucco paintings appear at one time to have covered the walls, portions still may be seen adhering in

several places, but in too minute quantities, or so discoloured by smoke, at so prevent anything being distinctly made out. The ornamental carving dispersed about the pillars, doorways, and lion thrones, is the exact counterpart of that adopted at Elloora and Ajuntah. The principal idol is of gigantic proportions : seated on a lion throne, with the feet resting on the lotus flower, and hands placed in a position, denoting the act of holy contemplation. A remarkable sameness runs through the forms of these figures ; judging by the universality of this representation, it would seem that there existed some ideal resemblance which was rigidly conformed to, as a rule of art, by the Sculptor ; what that particular physiognomy is, would be best understood by transcribing Burkhardt's description of some of the tribes of Northern Africa, coming under the generic name of Ethiopian. "Their features," he remarks, "are not at all those of the Negro ; their face being more oval, the nose often perfectly Grecian : the upper lip is, however, generally somewhat thicker than is considered beautiful amongst northern nations, though it is far from the Negro's lip. Hair is naturally curly, but not at all woolly. The attendants and praying figures associated with the idol, frequently possess a physiognomy of a very low type, betrayed by their projecting lips, broad high cheek bones, and flattened nostrils." These African resemblances have given rise frequently to the notion that India was indebted to Egypt for her cave temples ; and the idea is plausible enough. Seeing that in both, a great affinity exists as to their architectural combinations and massive sculpture ; but upon closer examination, the resemblance is, as the Chevalier Rienze observed to Bishop Heber, but slight and general ; the older migratory movements from east to west, will reconcile much of what would otherwise here appear inexplicable, for it is by no means improbable that the Troglodytal habitations of the mountains of Central Asia, have served as archetypes, both for the cavern temples of Upper Egypt and India, though it would appear that more foreign elements have become mixed up with the former than the latter, a circumstance possibly arising from engrafting the style of those countries their ancient monarchs had subdued. Colonel Hamilton Smith mentions a circumstance significant of the transduction of the race that first colonized Egypt, in the earliest Semetic tribes, possessing a tradition that the Indus was anciently named the "Neel-ab," a name they also applied to the great Egyptian river.

The religious system of two countries show likewise many affinities, a circumstance by no means astonishing with races, who it is supposed may have issued from the same starting point. The ancient theology of Central Asia appears to have been made up of elemental worship and astronomical conceits, the sun naturally being the supreme object of adoration. The Abbi Pluche refers all Mythology to Sun and Planet worship, but it is not reasonable to suppose hero-worship also lent its aid. The host of heaven were represented under most singular modifications of shape, from the idea of the deity derived from the person of man, to "the Beast and his Image;" to these were transferred that adoration, that originally had been rendered to the deity itself ; Bamian with its innumerable caves, abounds with images of some such nature. India and Egypt amidst all their revolutions and innovations, have still preserved the leading features of the faith of those lands they migrated from, elemental worship having in both sunk into the adoration of brute matter, symbolized by a variety of animals, possessing certain significant properties. If it be true, as Proclus observes, that lions were specially considered to be solar animals, we can account for their occupying prominent positions in ancient temples, where the principal object of worship was the Sun. They are constantly seen in India and Egypt, supporting the shrine on which the idol sits, as well as performing the office of guardians to the portal of the temple ; the same observation will apply to the lotus flower, typical of the Sun by its calyx opening and shutting with its influence, the use of which is very frequent in the temples of both countries ; to this we may add in support of a common origin ; a variety of animals sacred to both faiths, from some supposed qualities of their own, originating in the same common idea, modified by various causes, of which the principal are the Crocodile, Snake, Cow, Bull, Monkey, Ibis, &c.

The date for the introduction of Buddhism into the peninsula, is supposed to have been about the commencement of the third century, flourishing until the 7th, when either embarrassed by a cumbrous monachism, or professing doctrines repugnant to the times, it gradually succumbed to the debasing popular forms of Hindooism, that finally superceded it; this followed the cruel persecutions, originated by Sankar Acharya about the 9th century, prior to which it would appear, a species of compromise had been entered into by the apostate Jains, which allowed them to linger on after the final expulsion of that faith, they had deviated from: their season of triumph was, however, but of short duration, and about the 12th century, gave way entirely to the system of Hindooism that now prevails. With these preliminary remarks, we proceed to the description of the caves; approaching them from Aurungabad, the western ones are first arrived at, which we will commence to examine.

First Group.

A smart scramble up a steep rocky footpath, leads to a terrace in the hill side, half burried by rocks and earth that have fallen from above: much of it has also crumbled away; after making good our footing, we become aware of the existence of several caves, whose entrances were not visible from below. Above this first terrace at the distance of about fifty feet, another ledge or terrace is perceived, in equally a ruinous state, and also having caves opening on it; their entrances are choked up, by the successive deposits of muddy streams flooding their interior every monsoon. This upper terrace measures 70 feet in length, and 15 in breadth, having apparently three caves leading from it: a partial attempt at clearing away the rubbish and sandy earth from one of them, showed the sculpture to be of Buddhist character, and with this I was forced to rest content, as to have removed the obstruction, would have required more time and labour, than was at my command. The communication with the terrace beneath, was buried under rubbish; here we find four caves, the interiors of which have been sufficiently cleared, as to enable the entire characters of the sculpture being described; commencing with the western cave, we shall designate it No. 1 and so on with the rest.

No. 1, is a small cave, consisting of an anteroom, vestibule, and sanctuary, with a passage around it. The entrance is nearly closed by bushes and rock fallen from above, leaving a narrow space just sufficient to crawl through on hands and knees. In the half choked anteroom, Buddhist figures are seen arranged right and left on the walls in compartments, the seated figures of Budda having the legs either dependent, or crossed, with the hands invariably placed in an attitude of devotion. The vestibule fronting the sanctuary, has the roof supported by two square pillars, and two pilasters, well sculptured. The sanctuary is 14 feet square, and 10 feet high with the door towards the south, a passage three feet broad passes the whole way round. In front of the door is seated the image of Buddha, 9 feet high as sitting—the legs rest on the expanded calyx of the lotus, and the hands disposed in the usual attitude of contemplation, represented here, by the thumb of the right hand, pressing the little finger of the left: a thin drapery seems to cover a portion of the idol, the folds of which become apparent round the neck, lap, waist and across the thighs, the ends being gathered and grasped in the left hand: neither beard nor mustachoes are visible: the hair of the head is arranged in small conical curls terminating in a round knot or bunch on the summit: the ears hang low, with stretched lobes, pierced in the same manner as seen in the Jogees of the present day: no ornament appears upon the figure, unless a small hemispherical protuberance upon the forehead, about a size of a marble, deserves the name. The Sinhasan or lion-throne on which the figure is seated, has maned lions right and left supporting the bench: behind are represented several animals, at the base is an elephant crouching, with his trunk curled up beneath his head; immediately above him, rests a four-legged animal in a rearing attitude, carrying a human being on his back. He has a neck, scaly like the Dragon, a Goat-like head, with protruding eyes, and four short horns, two curving backwards and two uprights, his tail and claws are like a lion's. This fabulous animal is constantly represented in old

Hindoo temples, and at Elloora is seen as one of the non-descript animals supporting Mahadeo's grand hall in Kailas. The head is a favourite ornament to brackets and mullions, and sills and lintels of sanctuaries in brahminical temples ; at the top of all, and on a level with the upper part of the throne, appear the head and shoulders of some open mouthed proboscidean monster forming an elegant scroll-work to the summit of the throne : what it is meant to represent is difficult to say, being a compound of the *Dinotherium* with its tapir like proboscis, the crocodile, and *Hippopotamus*. Winged praying figures kneel on either side of the head of the idol, behind which appears a nimbus. Over the image in each corner, are seated figures of Buddha in high relief, and the walls right and left have similar figures placed one above the other, in four rows ; some having the legs crossed, others hanging down : each figure has subordinate attendants. The door-way is simple ; sockets are led into the jambs for the doors, which turned on pivots, and bevalved, fastening by a bar across. A plain pillar moulding forms the door frame outside, with a simple lintel surmounted by ornamental carved work of Pagodas, having roofs approaching a bell shape. Each Pagoda contains three niches, the centre one holding Buddha seated, and the two on either side, standing figures of Budiswartas : on each side of the door stand gignatic darpals, or doorkeepers, nine feet high, each accompanied by a figure canopied under five heads of the hooded snake. These colossal figures are generally present in Buddhist caves, either as darpals, or within the sanctuary as attendants upon the idol, and invariably represented as most opposite to each other in costume, not so with the equally colossal chowree walas, that generally accompany them in the sanctuary, who are always habited alike. The doorkeeper on the right is richly ornamented ; he wears a high pointed jewelled cap, the most prominent decoration upon it, being a seated figure of Buddha carved on a round ornament in front : the throat and neck are encircled by collars and necklaces, and the arms and wrists are adorned by armlets and bracelets richly cut. In the ears which are long lobed, and split, are placed ear-rings, the right is globular, and studded with elaborate representations of jewelry, whilst the left is a disc of some two or three inches diameter ; this custom of wearing ear-rings by men is very ancient ; Aaron formed the molten calf at Sinai, from the golden ear-rings of the sons, as well as wives and daughters of Israel. A narrow fillet confines the waist above the navel, falling down in front, in waving cords : around the loins three or four folds of a chain, arranged in square links are passed, whilst the shela or robe, crosses over the upper part of the thigh from right to left, and held in the left hand ; the right supports a long stalk of the lotus, on the calyx of which rests a small cross-legged figure of Buddha. The attendant figure with the snake canopy, wears a diadem, jewelled necklace, and armlet, both hands grasp the lower portion of the lotus. Over the darpal appears a flying figure, bearing a necklace of flowers. The doorkeeper on the left side, has much the character of the Hindoo penitential ascetics of the present day, he is represented devoid of all ornaments ; in lieu of the jewelled cap, he wears his own hair twisted turban-fashion round his head, elfin locks falling over either shoulder ; upon his left shoulder hangs the skin of an antelope ; below the navel, a band passes round the body from which hangs a narrow fold of drapery. The right hand holds a rosary, while the left supports a slender waving lotus stalk, on which a seated figure of Buddha rests, the snake canopied attendant, and flying figure are counterparts of those on the opposite side. The walls of the vestibule and passage passing round the sanctuary, are covered with compartments holding high reliefs of Buddha seated on a lotus, the stem of which is grasped by two figures wearing wings and tiaras, canopied by snakes ; two smaller stems springing from the principal stalk, support attendants on their flowers, who appear to be repetitions "in petto" of the darpals of the sanctuary. Buddha sometimes is represented with the legs crossed, as well as dependant : the hands as seen in the sanctuary, with one exception, where the back of the right hand rests upon the left palm.

No. 2, is a Vihara cave, squaring fifty feet either way, exclusive of side cells and sanctuary. It consists of a partly fallen ante-verandah ; a hall with cells at

each corner, side recesses, vestibule and sanctuary. The interior is much filled up with indurated sandy mud, washed in during the rains : a sufficient quantity was removed to enable me to judge of the style and nature of the sculpture. The wall of the outer verandah is pierced by three doorways, leading into the hall, which is twelve feet high, and the roof supported by twelve pillars and four pilasters ; these have rectangular plinths, with shafts rising in a rectangular manner for about a fourth their height, and then breaking into polygonal shapes, fluted or plain, encircled with richly decorated bands and fillets of rosettes and beading, surmounted by a capricious capital, either cushioned shape, or that peculiar form known as the vase and falling leaf, where the capital is vase like, with elegantly carved leaves drooping in spiral volutes from the points of the abacus. The architrave resting on the pillars, is enriched with sculpture generally representing Buddha seated with females, surrounded by a profusion of gracefully arranged, and well sculptured foliage. Medallions ornamented with Lions, Elephants and nondescript animals, serve to support the whole entablature. A medallion in demi-relievo, occupies the centre of the shafts in the side pilasters, of Buddha, and females, with very beautifully designed fillets and bands in bead work surrounding it—the same medallions are frequently repeated upon the pillars generally throughout. In several instances statues of females standing or fat males seated, with chancellor's wigs, are placed at the corners of the square pillars, and as these pillars are arranged in pairs, no two of which resemble each other, great variety of design is seen. The frieze resting on the architrave fronting the entrance, is covered by a series of sculptured figures in demi-relief, divided into thirteen compartments evidently referring to Buddhist subjects ; the sculpture is nine inches high, and clearly and cleverly executed. The first compartment represents a naked male figure seated on a throne, with a child upon his knee. He wears an ornamented high pointed cap, and jewelled necklace, an aged female seated on the ground in front is holding towards him another child, whilst behind, two naked male figures are sitting, who by the high caps, and wheel ear-rings they wear, appear to be Jogeos : one of them holds forth his hand, as though he were exhorting ; behind the principal seated figure are wigged attendants, a female chaorwala on his right and a male on his left, both furnished with the least possible quantity of clothing ; another attendant carries something like a book or box. Does this represent Buddha and his two children by Yaso-dhar Devi, to whom he was married at twenty years of age ? The second compartment represents a Bear, wearing a jewelled collar, riding on the back of a Tiger. A male and female appear offering presents in front ; musicians in niches above, are playing various instruments, one of whom is using the plectrum, instead of striking with the fingers. The third group represents the same principal figure seated on a throne, with a female in a state of nudity, standing by his side, two male wigged figures in attendance. The fourth group is a subject not easily reconciled with the mild tenets of Buddhism, that inculcate respect to life ; the empalement of a man is here represented, the executioner is employed binding the victim to the stake, which has been thrust through the body, passing out at the left side of the neck. A dog stands near the stake, and a little beyond, is a female ; a forest is supposed to be represented, by the variety of foliage occupying the back ground. The fifth compartment shows an abese old man, seated, listening to a female on her knees, playing some instrument, he wears a large wig : over head appear suspended a range of bells. The sixth compartment contains a naked male, with a female figure, seated on a throne, his left hand holding her's. Various wigged figures are dispersed about, one carrying a vessel into which he dips his hand : another in front rests in a half kneeling and sitting attitude. This appears to represent circumstances attending the celebration of marriage, judging by the joined hands, and the attendant with the vessel for the libation of water, which has to be poured over the hands thus united, and may have reference to Buddha's marriage with Yaso-dhar Devi. The next compartment shows an old man in a flowing wig, mounted on the back of a person, who bends under the load he carries. An attendant in the rear appears lending aid ; four other figures are in the back ground, two with flowing wigs, and two wearing bob wigs.

The eighth group is a battle piece, in which bows and arrows, swords and oblong shields are used. The battle is continued on into the next compartment, where a colossal figure is thrown down, to whom a wigged figure appears addressing himself; two men with snakehoods, and two naked females fill up the space beyond. The ninth group shows Buddha reclining on a bench within a forest, entering into Nirvana; a pig is represented on the left of the bench, and a Tiger on the right; the head of both being directed towards the prostrate figure. A man mounted on a horse appears in the left corner, the horse is in action, and wears a plumed crest between the ears; at the opposite corner a holy ascetic is seen seated under a palm tree, with a Tiger on his right, above him in compartments are half figures of snakehooded, and wigged attendants, both male and female. Two horses' heads are observable amongst the foliage of the back ground. The tenth group appears divided into three portions. In the right corner is an old man in an ample wig, seated on the shoulders of a man. The centre represents the entrance of a natural cave, overshadowed by trees, into which the two figures just noticed, appear entering, and the left corner is occupied, by an assemblage of figures in all sorts of wigs large and small, the principal figure being the old man who appears in the act of teaching; a figure with a Jogee's cap, and wheel ear-rings, is seated at his feet; a canopy of foliage extends over head. The eleventh compartment represents a procession of figures mounted on horses and elephants, preceded by two men, the one blowing the singhara, the other beating the dhol. The horsemen carry straight swords by their sides and wear wigs. A crested plume adorns each horse's head, and an umbrella of state is carried over the rider's head. One elephant is in motion, whilst the other is lying down, and thrusting out his hind leg for the convenience of the rider to mount, who is in the act of stepping on the elephant's foot for that purpose. An umbrella is also held over this person. The last compartment represents the same principal male and female figures seated on a couch, with drapery. They appear to be listening to the sounds of the vina played by a male wigged figure on the right, and a naked female on the left, is apparently accompanying it with her voice, judging by the attitude she adopts.

Round the frieze within the hall, a series of sculptured Pagodas in high relief are arranged, the alternate ones slightly projecting; those most permanent contain a male and female figure in amatory dalliance, with females, in separate niches right and left as attendants: in the niches of the receding Pagodas, there are placed a squab fat wigged man, with attendant females.

Towards the north and south are recesses in the wall, the roofs supported by two pillars and two pilasters, whose designs differ very much from those before described, their plinths are square, and of the same height as the others, with the Polygonal shafts plain or fluted, and braced round, with bands of bead and chain work, and rosettes, like the hall pillars, but the difference is found in the shafts tapering to a bottle-necked form on which rests the capitals, whose upper shape under the abacus, is not unlike the bell of the Corinthian capital, the compressed-cushion occupying the place of the enriched details of that order, a peculiarity is here observed in brackets springing from shoulders of the column right and left to the roof, resorted to for supporting the roof in the absence of the arch, the brackets are formed of the horned fabulous monster in an upright attitude, bearing figures on their backs, but the sculpture has been much injured. The pillars in the western recess are more exuberant in their decorations than the eastern ones.

Cells occupy each corner of the hall, whose dimensions are 15 feet long by 10 feet broad.

The vestibule to the sanctuary is supported by two pillars and two pilasters of the same form as seen in the recess, but infinitely more rich in their decorations, a richly cut moulding skirts the sides and tops of the entrance, arranged in what Heraldry terms imbattled lines, the ornamental border represents chain and bead work, with rosettes, and in each compartment formed of this arrangement of the design, appear figures of amatory couples; round the cornice above, are seen flying figures bearing necklace of flowers, and heads of the horned fabulous monster. The pillars and pilaster are of the most exuberant style of decoration, and covered

with sculpture from the base to the summit of the capital, the shafts breaking from squares into eight, sixteen, and thirty-two sides braced round with broad bands, on which amatory figures are shown in demi-relievos, or narrow fillets, of bead work, bells, rosettes, drapery, lozenges, and leaves. A richer effect is produced by the capital being divided into 32 sides, the ends of which turn over at the bell of the capital, and just above the compressed portion of the neck. The flying bracket is represented by a female standing on what appears something like a cornucopia, holding a child by the hand. Greater stability for the support is produced by giving a canopy of foliage, for connecting the figure to the roof.

The sanctuary contains a seated colossal figure of Buddha, on whose form the light falls, leaving all around in gloom, which incident is not without its mysterious influence : his position is similar to the Idol in the cave just described, and his Lion-throne presents the same decorative sculpture ; gigantic chaori walas stand on either side, with flying figures above in front ranged along the sides, right and left, are groups of kneeling figures, male and female. The sculpture is clear and well defined, which from this part of the cave being particularly free from moisture, has been kept in excellent preservation. They nearly all wear tiaras and richly ornamented jewelled dresses, the arrangement of the hair being of the most elaborate description, in flowing curls, braids or placed in a series of formal row, with a tassel-shaped bunch suspended from the crown of the head ; the countenances with one or two exceptions, betray a Mongolee-tartar origin, from the breadth of the cheek bones, projecting shape of the lower jaw and thick lips.

No. 3.—A few paces eastward brings us to the ruins of No. 3. Chaitya cave large portions of the face of the rock have here fallen carrying with it the whole front and a great portion of the cave itself. The dimensions are very insignificant in comparison with those of a similar description at Karli and Ellora, being but twenty-eight feet in width, including the side aisles and 30 feet from the basement to the roof ; the arrangement, however, of the cave, appears like the large ones ; the front having fallen down the scarpd rock, we can only suppose it had its external porch, as they have—a-centro aisle is perceived flanked by plain octagonal pillars, nine of which alone remain. The roof is waggon-shaped, with the ribs cut in stone terminating in a half dome at the further end, where the ends of the ribs converge towards the centre,—immediately beneath which is seen the deghopa, a plain hemispherical dome, surmounted by the tee, pierced with holes for fixing the umbrella of state. No sculpture nor ornament appear upon the circular basement. Upon the pillars and aisles, remains of painted Stucco may be observed.

No. 4.—The fourth cave is the last of this group, and is the one rendered conspicuous by having been whitewashed. This cave is but twelve feet long, and nine broad—a passage three feet wide isolates the sanctuary from the walls ; within it, seated on a bench, is a gigantic Idol, measuring as sitting 8 feet : the features resemble those we have described, but the attitude is different ; the legs being crossed, by the right foot resting on the left calf, showing the soles of both feet ; and the right hand resting in the palm of the left upon the lap ; folds of a robe appear on the rock behind, and round the throat ; in other respects there are no appearances of clothing : the figure is of black colour : no ornaments appear upon the person, and the sole decoration of the bench, in a conch shell, placed conspicuously in the centre. We may safely ascribe this figure to a Jain source, from the position and colour of the Idol, and the distinguishing emblem cut upon the plinth, which Mr. Colebrooke^o in his Essay on the sects of the Jains tells us is the discriminating sign of Nemi, the 22nd Tirthankar, who is also described as being of a black complexion. Tod mentions Neminatah the Negro-visaged, as being ushered into the conclave, with the deification of his cousin Krishna—the Saint is said to be sought by the amorous devotees of the faith—Nemi departed from this world at Ujjintah, described as being on the peak of a mountain and doubtlessly the same as Ajuntah.

The second series of excavations is situated about a mile to the east, in the same hill side, and at about the same height. They consist of four caves ; two of which are very conspicuous from a distance, whilst the other two are hidden by bushes.

^o Asiatic Researches, Vol. ix., p. 309.

No. 5 will be the first of this series, it has had a ruined external verandah, inner verandah, vestibule, sanctuary with passage passing round, and Lateral cells. The outer verandah shows by the remaining portions at either extremity, to have measured seventy feet: the walls have figures of females sculptured on them. The inner verandah was supported by four pillars and two pilasters the ruins of which are seen; they have square plinths, on the corners of which squat figures are seated, with fluted shafts and cushioned capitals, the same as seen in the Dherwarree at Elloora. Cells lead off right and left at either extremity. The vestibule has two pillars and two pilasters, placed in antis to support the roof, nine feet high and three feet and a half in diameter: they have rectangular columns, with medallions containing amatory figures in Medeo Relievo, a rich foliage pattern passes round the upper part in bands; the side walls in line with the pillars have in both sides colossal female figures sculptured, with a fat old man placed seated by them. The dimensions of the vestibule are eleven feet long, and twenty-one broad, the descent to which is made by one step. The doorway of the sanctuary has two broad steps in front, guarded by doorkeepers, bearing the snakehooded canopy. Gigantic figures ten feet high, wearing the high conical cap with the Buddhists emblem, stand at either extremity, on each side of whom are a male and female figure, richly dressed and well executed. Flying figures called "Powri" carrying cornucopie and wreaths, are hovering over their heads. The sanctum is ten feet long, and 13 in breadth and 12 in height. The figure of Buddha is the same as seen in No. 1 and No. 2 requiring no further description.

The attendants in the sanctuary are two tall figures seven feet high, standing on each side of the throne, being the simple and richer dressed personages, before noticed in No. 1 Cave. Two rows of kneeling figures, three feet high, are ranged on either side, five in a row, the females upon the left, males upon the right. The passage running round the sanctuary is seven feet wide, having lateral cells upon the east and west six in number fifteen feet deep: whilst two chapels containing seated figures of Buddha are excavated in the northern wall facing the side passages. The Idol on the eastern side is in the same position as observed within the sanctum, the western one slightly differs by having one hand placed in the palm of the other, both reposing on the lap.

No. 6.—A few yards further east and somewhat lower in the Rock is No. 6, it possesses an outer verandah, a hall or inner verandah, with recesses, and sanctuary, with a passage surrounding it, pierced by cells.

The outer verandah, is in the last cave, has disappeared, all but the extreme ends, where the remaining portions have figures of females sculptured on them. The inner verandah or hall has the entrance supported by four handsome pillars, and two pilasters, the shafts rectangular with sculptured scrolled medallions containing the frequently repeated group of amatory figures; the upper part of the shaft is encircled by a band on which Elephants are cut; passing down into the hall or inner verandah by one step, the doorway leading to the sanctuary is seen immediately in front, before which are steps leading up to the sanctuary, it being raised some three or four feet above the hall. The side passages of the sanctuary are lighted by windows looking from the hall. The doorway is very richly sculptured with mouldings running round architraves and lintel of a varying pattern of chain work, rosettes, and jewelry, interspersed with grotesque figures of human bodies bearing the heads of animals; the usual Pagoda cornice surmounts the whole, similar to that seen over the sanctuary door of the first and last described caves. The two windows or apertures for affording light to the side passages, are as elaborately finished as the doorway, but instead of a cornice above, have each a frieze or entablature decorated with rosettes, on which are represented Lutchmee seated between two Elephants in the act of pouring vessels of water over her; two attendants stand beside her; this introduction of Lutchmee into a Buddhist Temple occurs several times at Elloora, more especially in those most modern. Lutchmee is considered by some, as representing the Fecund principle amongst Buddhist, of which water itself is typical. Between the door and windows we find sculptured on the wall in very high relief, gigantic figures of the two remarkable

Buddhist attendants, the decorated and unadorned figures that we have before dwelt upon in some detail. I cannot help surmising that they represent in conjunction with the idol in the sanctuary, a recognition of the Hindoo trinity, for the Buddhists in their degenerate days, acknowledged, in common with the Jains, the Trimurti of the Brahman religion; at Elloora these two figures may be traced through the Jain caves holding similar prominent positions but there they are Digambara figures, here Savithambara. The simpler figure of the two appears in this instance as in others, to be invested with a higher degree of sanctity than his more highly decorated companion. His head dress is similar to that given to Brahmah at Elloora and has engraved upon it the Buddhist emblem: his right hand is raised in a devotional attitude the palm outward, with the fingers towards the heavens, the ancient mode adopted when solemnly making oath^{*} in the left hand is held the sacred lotus—above his head two Buddhists figures are seated, with flying figures. There is some remarkable sculpture associated with this figure, which at the risk of being considered tedious, I think worthy of detail. It is arranged in eight groups on projecting ledges, four in either side of the figure: the parties forming each group seem in the attitude of prayer or supplication, all are looking towards the idol: at the extremity of each ledge, a flying figure with Buddhist emblems is interposed, as if forming the communication between the idol and suppliants. Sculpture similar to that about to be described, is seen at Elloora in one of the southern caves, as well as at Ajuntah: where the same subjects are represented on Stucco, but unfortunately the greater portion has become indistinct. The first group upon the right commencing from above is much mutilated: it represents a portion of two figures kneeling with closed hands—behind them appears a mass of flaming fire. The Ajuntah sculpture corresponding to this, shows a female seated with the right hand upraised, as if about to strike a male figure kneeling before her, whom she grasps with her left hand. The kneeling figure has the head thrown back, and his right arm is flung over his head. The Ajuntah painting shows but a small portion of the whole, representing a black male figure running from the flaming fire.

The second ledge contains three male figures wearing wigs, the outside one holds a sword in his right hand, and a standard in his left; the centre carries an umbrella over the other who is kneeling; the corresponding sculpture at Ajuntah differs no further than in reversing the position: the painting of this portion is entirely obliterated.

The third group represents three figures bound hands and feet. It is similarly shown at Ajuntah, but totally destroyed in the painted representation.

The fourth shows a ship in full sail with mainmast and mizenmast, back stays, streamers, and mat sails,—a person is steering the vessel with an oar over the counter, another stands amidships holding a round vessel in his hands, as does another person in the bows, who by the necklace and head dress appears to be a female; the Ajuntah sculpture represents a rough appearance of a boat without sails, with two figures; the first one only carrying a vessel: the Stucco painting is destroyed.

Commencing at the top on the left side, we have two figures kneeling, a male with hands joined in prayer, and a female clasping him round the neck and waist; a maned lion sits behind, holding up one paw: the Ajuntah sculpture differs very slightly. In the Stucco painting a black male figure is seen praying and behind him a Lion is rearing up.

The second group has a male and female praying: behind them are Lingas, out of which the heads of the Cobra are protruding. The Ajuntah sculpture differs from this by the male praying towards the Buddhist figure, whilst the female has turned herself towards the Snake; who is in its full length, without lingam, or pedestal. The Stucco painting represents a black male figure praying with a Cobra rearing itself up behind him.

The third group is a kneeling figure, beside whom stands a Buddhist ascetic praying—an Elephant beneath a mango tree is behind: the Ajuntah sculpture

* Rev. Chap. x. 6. Gen. Chap. xiv. 22.

shows a female clasping a male in her arms both kneeling, with the Elephants behind; the Stucco painting of this part is lost.

The last group is much mutilated, but appears to be a female seated bearing an infant in her arms, an old hag with pendent breasts and streaming hair stands over her; serpents are twined round her neck and arm: a Buddhist ascetic is praying behind them. The Stucco painting shows an old harriidan painted white, in the attitude of dancing, her left hand holds a Snake which passes round her throat in lieu of a necklace, her right hand upraised, points with the forefinger towards a figure beside her. She wears bands of blue beads round her wrists, and ankles—her hair hangs in elfin locks over her flaccid breasts, a portion only of a black figure is seen kneeling before her. The Ajuntah sculpture is similar to that shown here, with the exception of the Buddhist ascetic.

The richly dressed figure occupies as conspicuous a position as the one just described, he wears a conical ornamented cap, with the Buddhist emblem in front: in the right ear is worn an ear-ring of a wheel shaped form, whilst in the left he wears it ringed shape: necklace, bar armlets, bracelets, and waist ornaments as before described in the first cave. On each side are placed male and female figures, five feet high, who are again attended by dwarfs: above are flying figures. We may note that in corroboration of the simpler figure being the most sacred, we here perceive flying figures occupying the place of those in the attitude of prayer, accompanying the simpler one.

The recesses east and west are raised from the floor of the hall by three steps, and are each supported by two pillars and two pilasters, similar in design to those of the verandah, but smaller in dimensions. The western recess contains a series of figures ranged against the wall, cut in such bold relief as to approach very nearly the appearance of statues. They are eight in number, the first and last representing the two classes of Buddhist religionists; the intermediate ones are all females. The northern figure is a Budiswatta holding his robe in his left hand, in the attitude these figures generally are seen adopting. The southern figure is apparently a sacred mendicant. The six females all bear flowers and fruit in their hands, and each have the hair very elaborately arranged. Females were permitted by Sakya Muni to embrace a religious life, and this cave may probably have been a convent for Nuns.

In the opposite recess two figures are seen seated on cushioned seats with backs: one is a ventricose old man with flowing wig, holding a hand chaplet. This figure is commonly seen at Ajuntah and Elloora, and very frequently associated as in this instance, with a full bosomed female seated by his side, nursing a child upon her knee; they have attendants behind, and flying figures above.

Standing on brackets at the corners to the North, are two well sculptured females the size of life. The gallery passing round the sanctuary is ascended by three steps, the sanctuary itself is raised above these, two steps again. From the galleries, six cells open, and at the further extremity of the galleries are two chapels containing seated figures of Buddha. The sanctuary is a small chamber ten feet square containing the usual seated figure of Buddha with a Lion throne, more than usually ornamented, out of the mouth of the Probiscidean monster is seen rising, the gracefully curved neck of the Ibis; snakehooded figures kneel on the back of the throne, and figures bestriding the horned monster, attacking others resting on the kneeling Elephant's head beneath, are executed in the best possible taste. Flying figures in pairs are perched above, whilst Buddhist figures arranged one above the other in three rows, are placed on either side: the lower ones have the legs crossed the rest are hanging down.

The wall on the right of the idol is occupied by a group of females in Demi Relievo standing $3\frac{1}{2}$ feet high; the central figure is a dancing girl very slightly attired, the rest are playing a variety of instruments, each adorned with an elaborate head dress. This sculpture manifests very striking proof of a deviation from pure Buddhism, as one of the minor precepts prohibited such indulgence as are here exhibited: the opposite wall has some cleverly sculptured figures of the same size, a male and female, the same apparently as represented beside the

decorated figure outside. The doorway is very richly ornamented in the mouldings of the frame work, and guarded by snakehooded darpals. Right and left of the entrance to the sanctum are ranged along the walls large female figures with attendants. On the right of the door, the sculpture is a female very profusely covered with jewelled attire, and ornamented head dress ; her bosom extravagantly proportioned, and holding the stalk of the Lotus : two female attendants in scanty habiliments, smaller in height, are on either side of her, bearing fruit and flowers, and beyond them stand dwarfs ; one leaning on a crooked stick seems to bend beneath the weight of the female's hand resting on his head, above are flying figures ; the cornice of the wall is formed of the convex eaves of a temple, in which seated Buddhist figures are represented. The wall on the left of the sanctum door is covered in a like manner with a buxom lady and attendants, similarly attired, but in this cave no paying figures appear above, as on the opposite side, by which we may infer some association between these two females, and the simple and decorated attendants without. The appearance of dwarfs is a common circumstance in eastern mythology, and has a mystical allusion no doubt.

The front of the next cave having fallen, no access can be accomplished but by help of a ladder. It measures 27 feet in breadth, by 20 in length, and is an unfinished Vihara without pillars or sanctuary, there are six cells opening into it, with a window. An opening in the wall towards the east leads to another half dug cave in the same unfinished condition, supplied with a verandah which is supported by two pillars and two pilasters : a large portion of the frontage has fallen ; this second cave is 20 feet long.

Ascending the hill some few yards easterly, a group of caves are seen which are not observed until close upon them, in consequence of rubbish and bushes hiding the front. The whole length of excavation is upwards of a hundred feet, extending to a depth of sixty. Much of the work has been destroyed, by the front tumbling in. The arrangement appears to have been an outer verandah that has slid down the side of the mountain, nothing but a very small portion remaining, the hall extended the whole length of the excavation, from which four caves opened ; three to the north, and one eastward at the further extremity of the three caves, the centre one the largest, having an inner verandah, vestibule, and sanctum the side ones have but a vestibule and sanctum. As you scramble over rocks and bushes into the cave, you have to step across a mishapen mass of rock lying in your path which after looking at a second time, you perceive to be the time worn sculpture of a recumbent figure of Buddah fifteen feet in length : he is represented reclining on the left side, and much injured by exposure to the weather : towards the feet which are partly broken, a figure with four arms is cut in the rock, one hand is grasping a lotus stalk, another holds a rosary, the palm of another is held towards you with the fingers pointing upwards, and the remaining one has been destroyed ; upon the head is worn a cap ornamented with the figure of Buddah. Passing onward into the most westerly of the three northern caves, we note the capitals of pillars adhering to the roof, the shafts of which have disappeared. The vestibule contains niches right and left, occupied by Buddhist figures in penetential attitudes. The sanctum contains a seated Buddhist idol with legs downward, thumb and little finger touching. Doorkeepers seven feet high, stand at the entrance the right one only bears the Buddhist's emblem in his cap. A doorway is broken through the wall of the vestibule into the adjoining cave, which is the largest. The vestibule here like in the last cave has no more remaining of its two pillars and two pilasters that supported the roof, than their capitals, which adhere to the roof ; at each corner of this verandah are placed well sculptured figures of females, in very high relief ; this cave, buried in rubbish up to the knees of the figures, from whence to the top of their head dresses they measure seven feet : each figure is most exquisitely sculptured, that is, the ornaments are with which they are covered, for nothing could be more skilfully or cleverly carved than the jewelled ear and flowers that adorn their head dresses, or the sharp chiselling and symmetry of chains and links and jewelled ornaments about their persons, conspicuously placed on the side of each of their head dress, appears the crescent, well and clearly cut. The bosoms

of these females appear as usually seen, of the most expansive description, and is doubtless not without its meaning. The door of the vestibule has darpals of the same colossal proportions bearing Buddhist emblems in their head dresses. Flying figures appear above, within are seated two obese old men, wearing bar armlets, and the door of the sanctum is guarded by darpals six feet high bearing the five hooded snake canopy, the left one only is finished. The sanctum is in an unfinished condition, the form of the idol having been roughly hewn out, similar to several instances noticed in the southern caves at Elloora. The other northern excavation is of small dimensions. The pillars of the vestibule show the same ruined state as the two others, the capitals alone adhearing to the roof, by which the inference may be drawn that fanatic violence has occasioned their destructions in all three instances. In niches of the verandah are figures of Buddah : in one instance seated cross-legged with the hands in the lap—in the other having the legs depending with the thumb and little finger joined together : in the hall, female figures similar to those remarked in the last cave are seen ; the floor is greatly encumbered with fallen ruins.

The sanctuary contains a seated figure of Buddah in a meditative position.

The side cave opening to the east is choked up with mud and rubbish, leaving nothing visible but the capitals of the pillars.

Third Group.—About a mile to the eastward in the curve of the same range, two or three caves have been commenced, not one of which was ever finished. The site has more claims to the picturesque than those we have just noticed, commanding a pleasing prospect towards the adjoining hills.

No. 9.—Is the commencement of a cave the front of which is nearly buried, and measures 18 feet in length, and 9 feet in breadth.

No. 10.—A cave with outer verandah and hall 28 feet in length, broken off abruptly after excavating to 13 feet.

No. 11.—This is a cave of large dimensions consisting of outer verandah, hall, vestibule, sanctuary, and side crypts ; the breadth of the hall is 46 feet with lateral cells extending to seven feet on either side, the depth of the rock from the outer verandah to the further wall of the sanctum is 80 feet : all is left in the rough, as if abruptly broken off, and nothing approaching to a finished state but the front of the verandah ; though I have termed the excavations on either side of the hall, lateral cells, from the resemblance they now bear to such a use, I am inclined to suppose these side cuttings to have been nothing more than the preliminary steps for forming the side pillars and aisles, which were intended to have surrounded the central hall.

W. H. BRADLEY, Surgeon,
On Special Duty.

MADRAS JOURNAL OF LITERATURE AND SCIENCE, VOL. XVI. NO. 39, 1851.

IV. STATISTICS OF THE SIRCAR YELGUNTUL. By Surgeon T. L. BELL,
H. H. the Nizam's Army, on Special duty.

This Sircar is situated between 18° 5" and 19° 5" North Latitude, and between 78° 30" and 79° 45" East Longitude,* and is bounded on the North by the river Godavery, on the N.E. by the Sircar of Ranghere, on the N.W. by that of Nandair, on the S. and S.E. by Mullungoor, on the S.W. by Maiduc. Two Purgunnahs, namely Vejeeghery and Velchal form a detached portion 8 miles to the Eastward, this is bounded on the North and West by Ranghere, on the South and East by Worrungul. The extreme length from N. to S. is 68 miles and breadth from E. to W. 48 miles not including the detached portion which forms an irregular parallelogram measuring 23 miles from E. to W. and 10 miles from North to South. The whole comprising an area of 27,554 square miles.

The general aspect of the Sircar is hilly presenting ranges which cross it diagonally, separating from each other and bounding three extensive plains : at the S.W. part of the Sircar the lowest of these ranges is seen, passing from the S.E. to the North-West the height does not exceed 350 feet above the level of the plain, the length of this chain from it

enters to where it quits is 9 miles. The second is distant from the first 18 miles and parallel to it, enters 5 miles S.E. of Saniagarum and traverses the Sircar in a N.W. direction terminating near Ingul where it joins the Western range, by lower and almost detached hills; its length is 32 miles.

The Western range commences 6 miles South of Ingul, and proceeds North increasing in elevation as it advances; at some points acquiring an altitude of 800 feet above the level of the plain, the Western aspect is steep, the Eastern slopes and meets the Northern slope of the second range, and the Southern of the third, forming a Table Land; this range sends out a spur to N.N.E. which terminates at Velloolah.

The third is the only one proper to the Sircar; it is distant 32 miles N.E. of the last; commences near Garapully where the height does not exceed 100 feet, passes N.W. gradually increasing in importance, as far as the pass between Poodoor and Juctial, where it acquires its greatest altitude, and from thence pursuing its original direction towards Yamulcoortee but gradually diminishing in height ceases altogether two miles from the Godavery; its highest point eight miles N. from Poodoor is 600 feet above the plain. The fourth has, like the first, only a limited course of about 15 miles; entering the Sircar at Jagadeopett from Ramghere, it has a greater altitude than the small range at S.W. corner, but it does not attain that of either of the others—it terminates by a gradual slope near the Godavery at Kumlapully. These are the important hills as by them the plains are bounded; and from them derive their mineral characters. There are others of less elevation scattered over the Sircar, rising from the plains either singly or collected into irregular groups. Two extensive plains are contained between the first and third ranges of hills separated by the second; that between the second and third is the largest, they both are longitudinal running parallel to the hills which bound them, both have a gradual rise in a N. and N.W. direction, and the largest merges into the Table Land described as formed by the shelving of the Western hills. North of the Poodoor range the Sircar consists of various smaller vallies formed by spurs of that range, the general declination is now towards the North and East; between the fourth range of hills and the Godavery is a slip of level country 18 miles in length and of a breadth varying from 3 to 4 miles.

These plains and vallies as well as the ranges of hills are covered with vegetation, except where the former have been cleared for agricultural and the latter shoot up into dome shaped, pinnaced, or mural summits. In the South, this is brushwood, while North between the third or Poodoor range and the Godavery the stunted wood has disappeared and given place to trees, but in no part of the Sircar do these acquire the size of forest trees or dimensions sufficient to yield what is generally understood by the wood timber.

The rocks of the Sircar belong to the primary, and secondary or transition periods, and for the most part to the first, syenite being the prevailing rock. The range of hills at Gumberowpet in the S.W. corner are granitic and composed of felspar, quartz, hornblende, and also mica, but the last in very sparing quantities, the three former components are in equal proportions, fine in grain, and form together a light coloured durable stone. This range does not present that diversity of summit so conspicuous in other granite hills; having a waving outline, with a gradual slope on both sides, that on the South being the most abrupt (23°) the loose fragments are smaller, than in those granites in which the components are less equal in proportion, and larger in crystal.

The second or Sircilla range is syenitic, the mica having entirely disappeared, and felspar acquired a great preponderance over the other minerals, existing in crystals of an inch and even two inches in length, of a pale red colour. This range presents an irregular and broken outline, and with it every variety of shape which can be formed by its pyramidal and cuboidal masses; towards its South Eastern extremity this characteristic is frequently absent, and the dome shape common, and when this happens the crystals are seen to be in more equal proportions, and of a smaller size. This range is much weather-worn, all the angles of its detached masses are rounded, and the surfaces soft, an easily broken, and as a useful stone is much inferior to the Gumberowpet range. North of this, but

towards the S.E. part of the adjoining plain, solitary hills are numerous of the same general character, the felspar having changed its fleshy to a smoky colour, and a few small plates of opaque and yellow coloured mica are to be seen occasionally.

The third or Podoor range is partly granite, partly gneiss; the south side presenting an even grained rock constituted of the four ingredients of granite. The summit of the range is of the same formation, at a distance of 100 yards from which, down the northern slope, it passes into gneiss; this disappears one mile from the base. Tracing this rock N.W. it is found to maintain its position with regard to the range as far as Murrageodum, 15 miles; and is then lost, but appears again as the surface rock near Metpully, 20 miles more to the N.W., where it is lost; in the S.E. direction it disappears near Rannudoogoo, 12 miles from Podoor, making the whole length of this formation 32 miles with an average breadth of 1; the bed is almost vertical. In this rock mica is sparingly abundant, and frequently the felspar gives place to thin layers of iron ore. Pursuing the N.E. direction from Juctial, there is a broken line of granite hills seen, passing from Thevecondah by Polass in a N.W. direction; the altitude of these does not exceed 300 feet and upon the highest is a portion of masonry, all that remains of the Fort of Thevecondah. The granite of these passes into gneiss at Murrealah, forming a range of low conical shaped hills, with a direction parallel to those already described, and offering a striking contrast to them, in their smooth tops and slopes; towards the N.W. they are lost a short distance from the right bank of the Godavery; to the S.E. they are continued into a similar range in the adjoining Sircar. In contact with and accompanying them on the N.E. side is a band of limestone, about 80 yards broad, and parallel with it a belt of silicious sandstone between this and the river, a distance of 5 miles. The surface rock is granite.

Trap dykes are common, traversing the Sircar from E. to W.

The mineral substances worthy of notice are kaolin, steatite, corundum, limestone, and the ores of iron; kaolin is abundant but of a yellowish colour, and although found in various parts of the Sircar little difference is observed in its quality—that found at Lingnapett is the purest; it is never used. Two varieties of steatite are found, one in the first range of hills near Yellareddypett, the other in the third near Korutla; the first is of a greyish colour, the other black: the former is not so common as the latter, which is much used for making cups and vessels to hold the acid condiments of food.

The compact crystalline corundum is found near Podoor, and has been pronounced to be of superior quality. The specimens were obtained during the rains from the bed of a nullah which, as well as others in the neighbourhood, contained too much water to permit of being properly examined, and an opinion formed, regarding the probable quantity to be obtained. As this mineral has assumed importance as an article of export from Madras, another opportunity will be taken to report on the capability of Podoor in connection with Palomcha for yielding a supply.

The position of the limestone has been previously mentioned. It is a carbonate; compact, hard, sonorous, and even in texture, with a bluish tinge, and an excellent building material. It is not used, but might if required be quarried with facility.

The ores of iron are found scattered throughout the Sircar and in the villages of Godoor, Mogulpett, and Chinttacoortee—in the Western part extensively smelted. It is obtained as an oxide from gneiss by pounding, and separating the stony matrix with the hand, or subjecting the powder to a stream of water, and also from the beds of nullahs which have their source in the gneiss hills, and into which it is washed during the rains and stopped in its course by weirs placed across the stream for that purpose.

In the villages to the N.E., magnetic iron ore is worked and produces an excellent iron. Towards the S.W. in the villages of Annavarum, Gajasingavarum, and Gomital the ferruginous claystone found upon the tops of the hills in the Western range is smelted.

Much importance is attached to the value of soils by both zemindar and ryot, and the latter shows great discrimination in attributing a proper value to lands allotted to him from his perfect practical knowledge of their productive qualities. Should the zemindar hold out for more

than the cultivator considers the soil capable of producing in addition to the usual remuneration for his own labours, the dispute generally terminates by falling back upon the buttae, the cowl, when both share equally.

The following is a list of soils in the order of their esteemed value; the uchha regur being considered the most fertile, and the salee doobbee as unfit for any agricultural purpose whatever :—

Uchha regurree, cutta regurree, chowka regurree, paurah, yerra chukka, pawtee, choonakaputterka regurree, chowtak zemin, rewa, chowtah sowdoo, ghedoosoo boome, rala sowdoo, salee doobbee.

The uchha regurree is found only on the banks of the Godavery and superimposed upon trap dykes, and although its position generally precludes the possibility of bringing it under rice cultivation, it is when favourably situated for that purpose equally fertile with the cutta regurree, the usual rice land, which differs from it in mechanical as well as in chemical constitution. The uchha is blacker in colour, more plastic when wetted, yet parting with its moisture sooner than the cutta, the chemical difference being the possession by the latter of more organic matters and silica and less lime. They are rated equally when similarly situated. The chowka regurree is a reddish soil good for rice, and jooaree is a mixture of decomposed syenite with vegetable matter, owing its colour to the felspar; the other varieties enumerated are mostly of a light nature, forming the high lands and cultivated for millets.

The climate partakes of that of the general character of that of the Deccan.

Atmosphere and
Climate.

From June to October the N.W. and from October until April the N.E. monsoons blow across the Sircar. July is looked forward to with much anxiety by all classes, as in that and the succeeding month the annual supply of water is expected: sacrifices are privately made in the house of every husbandman to Gunnatheputtee, and publicly the goddess Pochummah is deluged with the blood of goats that no failure may occur in this respect. Rain does not fall equally in all parts of the Sircar, the Western Purgunahs always getting a larger amount than the Eastern, and this apparently is caused by the ranges of hills which traverse it; in the racherla Purgunnah a sufficient quantity generally falls to allow of the usual extent of land being prepared for seed, and every three years an extraordinary fall is calculated upon with some degree of certainty; while in the Arsakota and Thevecondah Talooks, besides the annual supply being considerably less, a heavy fall is anticipated only once in six years. These Purgunnahs at the setting in of the N.E. monsoon are visited by a few days' rain, which is not desired by cultivators in consequence of damaging the jooaree crops ripening at that season.

The total area of arable land has been estimated at 416·7 miles², but as the assessment is the same now as it was when this estimate was

Productions.

made, and in the last year only 84½ miles were under cultivation, the probability is that the real extent is considerably less.

Table showing the quantity of Agricultural Produce in grain raised from June 1850 to June 1851 and gross value.

Grain.	Quantity.			Value.	
	Cands.	Mds.	Srs.	Rs.	a. p.
Paddy ...	27,167	14	0	4,07,515	8 0
Jooaree ...	4,613	19	15	74,487	8 6
Wheat ...	31	13	8	1,162	0 8
Indian Corn ...	1,038	17	8	12,741	0 2
Samah ...	1,300	1	22	13,998	4 8
Raggy ...	115	11	2	1,242	6 0
Moongh ...	279	13	14	6,258	13 0
Ttoor ...	254	2	10	4,011	14 8
Kudroonee ...	196	0	14	1,998	12 6
Chentah ...	304	10	28	6,146	14 4
Gram ...	134	1	10	2,043	5 0
Bajcerah ...	5	4	0	67	4 0
Mussoor ...	6	8	8	84	14 0
Total...	35,447	16	29	5,31,968	9 6

Table showing the quantity of Material for Manufactures grown in the same period and value.

Description.	Quantity.	Value.
	Cands. Mds. Srs.	Rs. a. p.
Cotton	1,063 8 2	25,080 13 4
Hemp	86 10 0	866 8 0
Total.....	1,149 18 2	85,946 5 4

Table of Produce for the same period of Garden stuffs and Oil Seeds with value.

Description.	Quantity.	Value.
	Cands. Mds. S.	Rs. a. p.
Thill	1,727 15 38	3,402 15 8
Castor.....	294 4 20	4,422 1 10
Tobacco.....	271 19 2	5,179 5 0
Chillies, Onions, and Goor.....	946 0 14	9,732 7 4
Total.....	3,239 19 21½	22,736 13 10

It is difficult to ascertain the exact number of beegahs under seed, as the dry crops are in some talooks cultivated under the nagur cowl and not by measurement ; but from the produce and the known capability of land where such is adopted a near approach may be made to accuracy.

Table showing the number of Beegahs under cultivation, amount and value of Produce of all kinds, and average value of Produce per Beegah.

Beegahs.	Produce.	Value.	Average Value of Produce per Beegah.
	Cands. Mds. S.	Rs. a. p.	Rs. a. p.
54,111	39,837 14 12½	6,40,651 12 8	11 13 5

A list of the spontaneous vegetable productions most deserving of notice has been appended. No wood is cut for the market. The chironjea sapida and morinda citrifolia, both yielding a red dye, are in extensive use, and in the neighbourhood of Juctial and Korutta, where they are in most request, are cultivated.

Stock is generally considered in conjunction with culture. The number of all sorts amounts to 2,66,991. The following table shows the different kinds.

Description.	Number.
Draught Cattle	44,907
Dairy	123,875
Sheep and Goats	96,861
Horses and Asses	1,348
Total.....	266,991

In the General Table is exhibited more particularly the number of each description of species ; no attention is paid to breeding, and the land is overstocked during the cold and wet months. The forage for their support is barely sufficient, and the fodder housed is quite inadequate to their wants during the hot season ; consequently when the herbage fails they die in hundreds, either from want of food, or diseases induced by its improper quality. Both bullocks and buffaloes are

small, averaging in price for draught fifteen rupees per pair. A she-buffalo giving four seers of milk (the usual quantity per diem) brings thirty-two rupees; a cow, which seldom gives more than two seers, fetches ten rupees. A pair of either buffaloes or bullocks are sufficient for drawing a plough, which here, unlike the ploughs of other countries, is constructed to turn up the smallest quantity of ground possible, instead of the greatest.

In this, the cultivator seems to adopt every means within his grasp and puts in practice those devised by his forefathers, though limited the former and rude the latter. For rice crops, after his agreement with the zemindar, water is let in upon his land, and when sufficiently soft, it is ploughed and the weeds collected by the gorroo and the clods broken by the buckerbackana (both drawn by cattle): after this it receives a scanty supply of manure of cow-dung, leaves of the custard-apple tree and corinjee: it is then smoothed with the hand and sown either with the drill plough, or by broad casting, the time occupied from the commencement to the conclusion of these processes being fifteen days for the abee crops, ten for the poonas.

When the seed is put in, the water is allowed to run off, and the ground is merely kept moist until it has sprung up; water is then turned on, and continues running until the harvest. Transplanting is not the general practice, and is adopted only to a very limited extent. During growth the fields are weeded three different times; and in four months to four and a half the crop is fit for the sickle; when reaped, it is stacked on the field, then trodden by oxen to separate the paddy from the straw; the former after winnowing—which is performed by women throwing up the grain, or pouring it out of baskets held as high above the head as possible with their faces to the wind—is divided amongst those who have an invested interest in it and borne away; the latter is carted to the house of the cultivator. Before the ryot removes what is left to him, he sets apart what seed he thinks he shall require for his next operations, puts it into a basket made of straw well plastered with cow-dung, and places it raised from the ground, in the driest part of his house.

It requires fifteen men or twenty women to reap one beegah in one day.

The ground is prepared by three ploughings, the weeds collected, burnt, and the ashes scattered upon the land. The seed is put in with the hand: after four months it is cut, eighteen inches of the stalk being left in the ground, and stacked. When the reaping is completed the heads are cut off the straw, and the grain trodden out by cattle, winnowed and removed in baskets to the house of the cultivator, the time of winnowing occupying fifteen days.

These two are the staple articles of food and obtain the greatest amount of attention. Muckka (Indian corn) is grown only around the houses of villagers, and zemindars frequently exempt the house occupier from taxation upon it. The soil is prepared with the hand, and the seed put in by dibbling. The amount sown is very insignificant, but it helps to eke out the daily food of the proprietor at a season when other grain is scarce.

The tenures for rice lands are several; that in most general use is the sheirrée hissa, when ground is granted to the cultivator being a meerasdar, and for abee crops, upon the agreement that from each candy of 20 maunds he will give 11 to the Sircar; to khooshbash or strangers, the zemindar receives only 8 maunds, allowing the ryot to retain 12: for the thabee the same is observed, unless anything should have occurred to render a separate agreement necessary. Land near tanks and villages is almost always cultivated under this cowl; for that at a distance from villages for the thabee two maunds in favour of the ryot is allowed.

The Nugdee Muckta—Is a money agreement, settled before sowing, and is generally 8 rupees per beegah for one crop. This is not common, few ryots being able to meet the required payment, but is preferred by the wealthy.

Buttaee—Is an agreement made after the grain has sprung up, in which the cultivator and zemindar share equally.

The Kailee Muckta—Is had recourse to when the ryot refuses to take half the produce, when an agent from the zemindar is deputed to measure it when reaped, and give half to the ryot.

The Bel Muckta—Is a letting of land for a number of years, seldom under 10, at a fixed annual rent, which must be forthcoming whether produced or not. This, however, is a favourite cowl, and when dependance can be placed on the good faith of the zemindar much benefit to the land is the result.

For dry crops or rubbee the nagur muckta is in general use, the zemindar determining the quantity of ground sufficient for one plough, and fixes the tax at from 2 to 3 rupees, according to its quality. For land unfavourable for any kind of produce no tax is levied upon either ploughs or measurement, the ryot making the best bargain he can for himself.

Such are the tenures upon which the ryots hold and cultivate the soil, and if their portion of the fruits of their industry were subject to no further reduction than they are under the cowl commonly agreed upon, they would do well; but sacrifices are called for on account of the general community, entailed upon them by a system which has existed for ages: sacrifices, however, they can scarcely be called, for some of the payments they are obliged to make in grain are remunerations for labour as necessary to them as food, and consequently a money transaction would be required, instead of a mutual exchange of food for labour and labour for food.

Thus, according to the sheiree hissa, 11 maunds are given from every candy to the zemindar: after he is satisfied, the putwarree receives three consoos, and the patail three more; then follow the village carpenter and blacksmith, who receive one consoo each; the dhers get four; the dhobee, barber, soonkaree koomar, thalaree, mudam, and brahmin proith four amongst them. The two first are village authorities, and receive in consideration, the former for maintaining order, and the latter for keeping the general accounts. The carpenter and blacksmith do all that is required as repairs to his agricultural implements; the dhobee and barber for administering to his personal comfort; the dhers for labour in his field; the koomar for supplying him with pots; the soonkaree measures his grain and that of the zemindar. The thalaree and mudam, the former the watchman outside the village, the latter within, receive theirs as a subscription for the general good, while the brahmin proith keeps him in mind of the days of the week, feast days, and foretells the coming and cessation of rain.

There seems nothing oppressive in this village system as it is called; its fault is that it prevents improvement. There is no inducement for a potter to turn out with additional labour a more elegant water vessel than the one in present use, because were he to do so it would not increase his claim upon the ryot. The carpenter and blacksmith for the same reason keep agricultural instruments in repair at the lowest rate possible, and fashion them originally in the roughest manner.

In money cowls the patail and putwarree receive one anna per rupee from the value of the produce.

The agricultural labourers are chiefly Hindoos, it being but seldom that a Mussalman considers himself called upon to exercise his powers in the field for the benefit of his household; in the Nacherla, Korutla, and Polass Purgunnahs some do, however, and work honestly and well. Of the Hindoos, the Koonbees, Moonoorwars, Gullawars, and Dhers follow husbandry as their means of livelihood; the majority of Koonbees are ryots, labouring on their land and employing their poorer caste men. The Moonoorwars devote themselves entirely to this pursuit. The Gullawars are a section of the shepherd caste, who, besides possessing cattle, labour as an additional means of subsistence. The Dhers are also willing to labour, but are not invited until those with more pretensions to sanctity are engaged. Women take their share of out-door work especially when crops are growing, the light labour of weeding and thinning being performed by them; they likewise assist in cutting and always winnow the grain; they are all drawn from the Moonoorwars, Gullawars, and Dhers. The wives of Koonbees never work in the field, but occupy themselves in domestic affairs, and are cleanly and industrious.

Men labourers are usually engaged from day to day and receive as remuneration at the rate of two seers each of paddy per diem when working in the rice fields;

Labour employed
and its remuneration.

and for dry cultivation, one seer and a half for jooaree : should they remain with their employers a full year, a cumlee and a pair of sandals is given to them, and sometimes a present of grain. In some Purgunnahs—there is a slight variation from what is here laid down—for instance in the Talook, Kutcoor, Nizambad and one or two others, the coolie instead of two seers of grain per diem gets one, with salt, onions, and chillies, sufficient for a meal ; women are always paid in money and receive two pies a day.

The rivers of the Sircar are the Godavery and Munar. A minute description of the former from where it commences to form the northern boundary of the Sircar to the point it leaves it, is given in the Geographical Memoir, to which reference is made. It will be sufficient to notice here that its course is extremely tortuous, running with a general direction towards the east through the country for sixty-one and three quarter miles from Rampoorum to Thurnavarum, the distance between these places by the road being forty-seven miles ; the average breadth is half a mile, the bed extremely rocky and the banks very high, particularly the right : towards the west it forms several islands, the largest being five and three quarter miles in length, and one broad, and has two inhabited and one ruined village upon it, belonging to the Nandair Sircar ; the stream is swift, and, at Dhurumpooree, rapid succeeds rapid for the distance of a mile, the stream being broken by the increased slope of its bed and masses of rock projecting from it : these masses are not loose, but part of the surface rock ; as regards the navigability of the Godavery in its course through this Sircar, during nine months in the year these rapids must effectually prevent it for any description of craft ; in June, July, and August the stream may be smooth, and there may be water sufficient, but its rapidity must require a high power to stem ; the high banks are an impediment to irrigation, and with the exception of one water-course, the river is not used as an adjuvant to cultivation. This water-course commences near the town of Vamulcoortee, and for the three months the river is full, water flows abundantly, fills three tanks in the Vamulcoortee Purgunnah, and is then allowed to run waste into a nullah.

A list of villages where ferries are established and money collected is appended.

The Munar river, although flowing but three months in the year, is of much more value to the Sircar than the Godavery, as a great number of tanks are filled from it, and lands irrigated by it directly, without the intervention of tanks.

On entering the Sircar from Maiduc it is 120 yards wide ; at the point it finally leaves it, 380 ; but when it first leaves it, to enter Ramghere previous to its forming the northern boundary of the detached Purgunnah of Vejaghery and Velchal, it is half a mile. In this respect it is very variable ; the bed is sandy, and throughout its whole course, is characterised by the number of its islands and the lowness of its banks. It begins to fill at the setting in of the S.W. monsoon and continues to flow until November ; in December water may still be obtained everywhere by digging ; but the river is broken up into a number of pools. In its course, it is joined by several large nullahs which have their source in the first, second, and south side of the third ranges of hills, and which flow through and water the valleys separated by them. The first named, the Rambudra nullah, falls in, one mile from Gumbeerowpet ; it comes from the N.W. and waters that part of the Racherla Purgunnah ; canals are cut to three tanks from it, and care bestowed to keep them open.

The Gungah nullah arises near Ingul on the Western range, and after a course of 25 miles, falls into the Munar at Koodrapak ; at Yamulwada a dam of earth has been thrown across and a canal cut to the tank ; but the latter has been allowed to fill up, and it is now almost useless.

The Mohedonada nullah arises in the Bhongeer Sircar, and has a northerly course of 14 miles ; the tank at Rainkoorta is filled from it. The Goondairoo flows S.E. from Nairella to Doorshed, a distance of 28 miles : it passes Podoor, Numlikondah and Rammuddagoo, where canals are cut for irrigation, but no tanks are filled from it. It is a broad sandy nullah with steep banks.

The Suly nullah waters the detached Purgunnahs of Velchal and Vejaghery, enters at Muddycoonta, where it is joined by a large branch from Gherkoor; it runs past Pothgul and Velchal, falls into the Munar four miles North of the latter: it has high banks, a sandy bed, and contains water during the greater part of the year.

The other nullahs arise from the north side of the Podoor range of hills, and the table land to the westward. The largest called by the natives Pedda Wagoo arises at Murreala, and after a serpentine course of 38 miles in a N.E. direction, falls into the Godavery near Peddemuggadoor; it is joined by others during its course, and attains a breadth of 200 yards. There are no anicuts, and Korutla and Jylapoorum are the only places where small canals are cut to water lands. In the hot season this nullah is perfectly dry.

There is also a considerable nullah, without a name, commencing at the Juctial tank, and following eastward by Polass, Kulada, and Chekulla, near which it crosses the boundary, and falls into the Godavery in the Ramghere Sircar. Although the lowness of the banks of this nullah are highly favourable for cutting canals, yet Kumbumpully is the only place where such has been done, and there the land irrigated only amounts to a few beegahs.

The total number of tanks in the Sircar is 3,120, and of these 665 are large, and 2,455 small; of the former 215 are out of repair, and of the latter 1,834, leaving 1,071 in good order. In speaking of a tank the zemindars are guided in their estimate of its size by the quantity of land it will irrigate in one year when full, so that a 300 beegah tank does not mean the superficial measurement of the tank itself, but that it will contain water sufficient for bringing 300 beegahs under cultivation; of the whole number of tanks only 9 are filled by channels opened to rivers or nullahs: of these there are in Racherla 3, Yellareddypett 1, Avonoor 1, Yamulcoortee 3, Yamulwadah 1; the remainder are dependant upon the rain which falls into them, or carried to them, by small channels cut from the surrounding lands.

The tanks of Yellareddypett (in the Jaghir of Hurray Dass) and Saniagarum are the largest in the Sircar. The former, it is computed, will hold water for 3,000 beegahs, the latter for 5; but the former is deprived of much of its usefulness from the circumstance of the channel, which was cut from the river to fill it, passing through the lands of another zemindar, who supplies the wants of his own ryots first and allows little to find its way to its proper destination.

There are 13,086 wells in this Sircar, 5,949 in repair, 7,137 out of order—that is, the former are built up with stone from the rock in which they are sunk; in the latter this is only partial or neglected altogether. They are chiefly for supplying water for the use of the inhabitants. In addition to these there are 5,493 moats, from which water is drawn to irrigate gardens and rice lands. The means of irrigation then are first by channels cut from rivers to supply land directly, secondly by tanks, thirdly by moats; the first system is most common along the banks of the Munnar, and can only be carried on during the wet season.

The tank water is never used until after the rains, unless a necessity arise for so doing. The supply is reserved for the tabee or late crop, the abec or early one being raised by what falls upon the land. Moats are used to irrigate all gardens, from pits sunk near them, and when tanks run low, irrigation is kept up by them from the same, dug in the most convenient position for the purpose.

The total of villages in the Sircar is 981, of which 197 are deserted; the number contained in each Purgunnah with a population of each is exhibited in the general table. The Kusba of each Purgunnah is the village selected for the residence of the revenue officer and where he holds his cutchery, formerly the judicial head-quarters was established in the town from which the Purgunnah derived its name; but from neglect in the Maramut Department, and other causes influencing an agricultural population, some of these have fallen to ruin and others nearly so.

Yelgunthul.—The capital is still the largest town in the Sircar, and although other towns have decreased in population, that of this one has doubled within the

last 20 years ; it is situated on the left bank of the Munar river, in North Latitude $18^{\circ} 25' 21''$, East Longitude $79^{\circ} 4' 56''$, contains 884 houses and 4,376 inhabitants ; the houses are kutcha with tiled roofs, and built with some degree of regularity ; the main street leads from the north to the south gate ; these give ingress and egress to the inhabitants. Portions of a mud wall which once partially surrounded and connected the town with the fort remain, the greater part having been removed to make way for houses. The fort is elliptical in shape, built of granite and surrounded by a deep ditch which is filled by a covered channel from a tank, the wall is in good repair, and also the four square towers erected at equal distances upon it. From the centre of this enclosure rises an almost perpendicular granite rock 185 feet high ; it is fortified with a low wall mounted with eight large wrought iron guns, the only part to the top leads through several narrow archways, it is extremely steep and difficult to ascend. The buildings at the top are in ruins. A Kiladar with 25 men is in charge, upon a salary of 35 rupees a month ; the revenue of the jaghere amounting to 3,705 rupees, granted for the purpose of keeping the fort in repair, is collected by a Naib and remitted to the city. A weekly fair is held on an open space between the fort and town, when coarse cotton cloths, cumlies, and vegetables are disposed of. With the exception of a small number of quilts there are no manufactured articles exported.

Juctial.—Also a jaghere in the Purgunnah of Polass, is the next town in size ; it is distant north of Yelgunthul 22 miles, contains 516 houses, and 2,812 inhabitants ; the streets are regular, and the houses not crowded together as they usually are.

There are one hundred and twelve looms for the manufacture of fine and coarse cloths ; the former, amounting in the last year to 1,141 pieces of nine yards by one and a quarter, valued at 10,141 rupees, were exported. Besides cloths Juctial sends a considerable quantity of slippers to the city market, which find a ready sale on account of the good quality of the leather. To the N. W. of the village at the distance of half a mile is the fort, octagonal in shape and about 200 yards in diameter ; all the walls are of substantial material, the rivetment stone and chunam, the parapet brick and chunam, the counterscarp 14 feet in height, the escarp from 31 to 35 feet ; the ditch is deep and broad crossed on the N. W. side by two draw-bridges ; it is said to have been built 90 years ago by a Mussulman named Durrum Sahib, who had a French engineer under him. It is kept in repair at a cost of about 3,000 rupees annually, and garrisoned by a Kiladar and 210 men. Juctial is the Kusba of the Thevecondah and Polass Purgunnahs, as the Talookdar of these districts holds it in jaghere. Thevecondah is in ruins and the small town of Polass has been separated from the Purgunnah as Agrarum.

Gumberowpet.—The kusba of the Racherla Purgunnah is a large village 76 miles west of Yelgunthul ; it has 505 houses and a population of 2,405, chiefly employed in agriculture.

—Of Racherla not one house remains ; traces of a fort and ruined mosque are all that mark its former site. The people in the neighbourhood attribute its desertion to the unhealthiness of the locality, but there is nothing to bear out this assertion. A more likely cause is found in the fact of there being two broken bunds of tanks in its immediate vicinity ; these tanks formerly irrigated a large extent of rice land which is now overgrown with jungle, the people having forsaken the town for other villages more favourably circumstanced for agricultural pursuits.

Korutlah.—The kusba of the Purgunnah of that name is situated N. W. of Yelgunthul 39 miles on the left bank of the Peddavagoo ; a ruined wall partly surrounds the town, which contains 424 houses and 2,157 inhabitants ; it has no pretension to regularity in the arrangement of its streets, nor to cleanliness. Coarse writing paper is manufactured here and sent to the city and Jaulnah for sale ; 12 mills giving employment to 74 people are kept in pretty constant work. The quantity produced last year was 864 reams valued at 2,239 rupees and 12 annas. It is the only town in the Sircar where paper is made ; an inferior description of cotton cloth is woven and exposed for sale at the weekly fair and occasionally sent to other markets ; 760 pieces, the production of 31 looms, was the

extent to which this branch of industry was carried during the last year, their aggregate value being 4,560 rupees.

Sircilla—In the Havalee Purgunnah is a large town with 464 houses and 2,267 inhabitants; it is distant to the westward of Yelgunthul $32\frac{1}{4}$ miles, the population are chiefly agricultural, but cumlies and coarse cloths are made to a limited extent. The town is built upon very broken ground and is irregular in consequence. It contains bazars and a small ruined ghurry.

Moncondoor—Is perhaps the most flourishing town in the Sircar, it is situated in the Havalee Purgunnah, $9\frac{3}{4}$ miles S. E. of Yelgunthul, is surrounded by a ditch and wall now in ruins, and has a large stone ghurry. Twenty years ago it contained 100 houses, it now numbers 421 with a population of 2,224; there are 22 looms for the manufacture of coarse cloths.

Kurreem Nuggur—Is the kusba of the Havalee Purgunnah and where the Sudder Naib resides; it is $6\frac{3}{4}$ miles to the east of Yelgunthul on the left bank of the Munar, contains 202 houses and 988 inhabitants; the finest rice grown in the Sircar is raised in its vicinity, and sent to the city market.

Metpully—Is the kusba of the Velloolah Purgunnah; it is 40 miles to the N. W. of Yelgunthul, contains 861 houses and 3,096 inhabitants. This town is clean, dry, and well situated on high, open ground; formerly large quantities of cloth and paper were manufactured, but that of the latter has ceased entirely, and the former made only to supply its own market.

Jummicoonta—Is the chief town and kusba of the detached Purgunnah of Vegiaghery and Velchal, distant 20 miles due east from Yelgunthul; it has 225 houses and 1,112 inhabitants. There are two looms for the manufacture of carpets at the village of Veenavunka, and these are the only two for that purpose in the Sircar.

Such are the chief towns in the Sircar. The remaining villages from which Purgunnahs have been named are either small or deserted.

Yamulwadda—Is a considerable village on the left bank of the Gunga nullah in Havalee Purgunnah; has 2,909 inhabitants, of whom 642 are Brahmins, who hold the town in jaghere; they have no records to show when the grant was originally decreed, the whole having been lost by fire which nearly destroyed the town 40 years ago.

Another deed has been obtained from the Dewan Muneer-ool-Moolk Bahadoor to the following effect:

"To all Desmooks, Sir Deshondias, Deshpondias, Revenue Officers, Accountants, Ryots, Labourers, &c., in the Havalee Purgunnah of Yelgunthul Sircar in the country of Hyderabad here.

"The village of Yamulwadda in the aforesaid Purgunnahs with property, and Sayer, and Mothurpha, and Kullale, also taxes on feasts of the temple, all gardens, trees, &c., all and several of these from the beginning of the year 1225 Fuslee, are given to one and all of the Brahmins residing in the aforesaid village without mentioning particular names, or shares, to themselves and their heirs for ever; and also to defray the expenses of the Pooja at the temple.

"It is therefore necessary that all people knowing this should allow the aforesaid Brahmins to have their lawful property at the proper season, and considering this as their authority act accordingly.

"Given on the 15th day of Saubon 1230."

The property thus conveyed to them has been divided equally between 200 families, the affairs of the community being managed by three of the descendants of the Somiajooloo, who at first made the distribution: lapses of shares from families becoming extinct seldom happen; when such occurs, selection is made from the Koosbash Brahmins by the Somiajooloo. The fees received at the temples amount to more than its expenses; the surplus being portioned out to those chosen to officiate in them; annually a certain number depart in search of charity, returning after some months and adding a portion of the proceeds to the general stock. The Brahmins do not live unmolested, the zemindar has contrived to fix (notwithstanding the royal instrument of the Dewan) an annual fee of 700 rupees as roosum, an acknowledgment of his hereditary right of proprietorship. The Naibs also are constantly at work with exactions of some kind or other. The temples are small and without

HYDERABAD AFFAIRS.

ornament and are falling into to decay. To the Appendix has been added a statement of receipts and disbursements for the temple for one year, exclusive of the revenue derived from land, 2,397 beegahs of which belong to the jaghere.

The Agrarums of Thurumpoory, Polass, and Thurmarrum are maintained in a similar manner to that of Yamulwadda.

The total of population is 1,75,267. The General Table exhibits the number and description of both sexes in each Purgunnah, together with their several employments. It is necessary to mention here as connected with the following tables that of the 2755·4 square miles, the area of Sircar, 1936·5 miles are incapable of cultivation.

Table showing the number of square miles in the Sircar, the population, the number of inhabited houses, the population per square mile, with the number of persons to each house.

Square miles.	POPULATION.				Houses inhabited.	Population per square mile.	Number of persons corresponding to each house.
	Males.	Females.	Children under 10 years.	Total.			
2755·4	58,842	61,375	55,050	1,75,267	37,297	63·61	4·69

Table showing the number of each description of Population.

Description of People.	Houses.	Males.	Females.	Children under 10 years.	Total.
Cultivators.....	11,566	18,845	19,483	17,093	55,421
Shopkeepers	5,680	9,540	9,984	8,893	28,417
Weavers.....	4,776	7,250	7,647	7,572	22,469
Meerasdars.....	10,198	15,991	16,489	15,432	47,912
Bearers, Peons, and Religious Beggars	5,077	7,216	7,772	6,060	21,048

The cultivators may be divided into three classes, viz., those who possess land but do not labour, and those who rent land and labour upon it, and again those who neither possess nor rent land, but who live solely by labour. Of these we have of both sexes belonging to the first 976, to the second 32,213, and to the third 5,139.

Meerasdars comprise all those employed under the village system who, generally, in addition to their claim upon the ryots, have a small patrimony near the villages in which they reside.

Table showing the number of People in each division of the Population as recognised by the Government.

Description of People.	Houses.	Males.	Females.	Children under 10 years.	Total.
Meerasdars.....	10,198	15,991	16,489	15,432	47,912
Ryots	9,807	16,343	16,846	14,727	47,916
Moturpha	10,456	16,790	17,631	16,465	50,886
Kooshbash	6,836	9,718	10,409	8,426	28,553

The Moturpha (Shopkeepers and Weavers) are the only class who pay house tax.

Table showing the proportion of Hindoos and Mahomedans.

Description of People.	Houses.	Males.	Female.	Children under 10 Years.	Total.
Hindoos	86,250	57,227	59,600	54,056	1,70,883
Mahomedans.....	1,047	1,615	1,775	994	4,384

Whether any decrease in the number of the population has actually taken place, there is nothing upon which to form a correct report. The almost universal reply by village authorities, when questioned on this subject, describes it as diminishing. However this may be, there is certainly nothing to invite or attract an influx of strangers, for though Kooshbash get land upon more favourable terms, the wants of the zemindars render them nominal; the ruined villages and broken tanks are evidence of decrease in agriculture, and such can scarcely

happen without a decrease of people, in a community where there is little or no trade in manufactured articles. People seldom leave their villages without great provocation, and should they do so, it is only to remove to one belonging to the neighbouring zemindar, so that the population of a large district would not be numerically influenced thereby. The social condition of the ryots may have more influence, pressed as they are with demands; they live upon as little expense of labour and food as possible. The want of confidence universally existing in the good faith of the zemindars prevents that wholesome exertion necessary for the realization of property, and its attendant benefits; so that the tendency is generally either backwards, or to remain in a state of apathetic listlessness, badly clothed and half fed. Disease, especially small-pox, must have great effect in retarding the growth of the population; every three or four years a visitation from this scourge is expected, and in the absence of all preventive or sanitary measures, is the cause of great mortality. In the village of Alleoporum, in the Vempully Purgunnah, out of a population of 436 it is stated that 85 died in 4 months from that cause alone. Cholera breaks out once in 8 or 10 years. Intermittent fevers prevail in the Northern Purgunnahs during the cold season, and to a more limited extent in the South, but the mortality from this disease is not great.

The number of schools is 52, one to every 15 villages; the number of scholars 1,352, or one to every 130 of the population. Teloogoo (for there are no Persian schoolmasters) is the language taught, and that to a very limited extent; the keeping of accounts is the main object to be acquired, and when this is accomplished education is considered complete, although the scholar may not be able to read an ordinary manuscript. The sons of Bunniahs, and the village Putwaries and Patails, are all who seek instruction. The village system is probably to blame here. The official offices being hereditary, there is nothing tangible to reward the exertions of additional study in other sections of the people not Meerasdars.

The returns obtained on the state of crime afford no correct information, and are consequently omitted. Every Talookdar has a Cazeer, to whom is assigned the duty of awarding punishments; in serious offences the judgment is forwarded by the Naib for the approval of the Talookdar, who gets it confirmed or otherwise by the Mahkama Adalat before it is carried into execution. All offences are punished by fines or imprisonment.

The police establishments are of two kinds, one maintained at the expense of the ryots, the other by the state. The first are the Thalaries or village watchmen, and are under the zamindar; they report all that occurs to the authorities, and watch the grain fields and the inhabitants both by day and night. Although a house tax and town duty are collected, neither is applied to the payment of these men.

The second are engaged by the Talookdar and serve for both police and revenue purposes; they receive prisoners from the village authorities, and have the custody of them before and after sentence has been passed. These are under the Naibs.

These consist of fine and coarse cotton cloths, tusser, cumlies and paper; in almost every village sufficient coarse cloth is made for the supply of its own people. In some, manufactures are extended for exportation. In the whole Sircar there are 3,808 looms, of these 3,391 are for fine and coarse cotton cloths, 396 for cumlies, 19 for tusser silk, and 2 for carpets.

Table showing the quantity and value of the Articles manufactured annually.

Articles.	Quantity.	Value.		
		Rs.	s.	p.
Cotton Cloths	28,770 Pieces	2,14,161	3	11
Paper	864 Reams	2,239	12	0
Cumlies	19,920 Pieces	7,470	0	0
Tusser	386 Pieces	1,630	0	0
Total Rupees.....		2,25,500	15	11

The trade in manufactured goods is entirely in the hands of Bunniah, who, by a system of advances, keep the labour of the weavers at their disposal ; and let the quality of the article be a silk sarree or a common cumlie, the remuneration to the operative is the same. No official records are kept to show the quantity of exports and imports, and from the amount of town duty alone, a correct estimate cannot be formed, because an imported or exported article in its transit within the Sircar pays duty on entering every talook, consequently it may have been taxed two or three times before it reaches its market, or quits the district, and any conclusions drawn from the duty paid upon any one article in any talook would therefore be erroneous. The sayer or town duty is raised chiefly from the exportation of rice, ghee, cloths, and paper, and the importation of salt ; but the quantity of each commodity or the amount derived from each cannot be shown.

The villages in which iron is manufactured have been mentioned ; but it is difficult to determine accurately the extent to which smelting is carried ; the furnaces are not kept constantly at work, but only when there is a demand, and that is by no means steady. The best market is Konasamudrum in the Nandair Sircar, where the famous steel is made.

The allowance paid by the manufacturer to the zemindar is one rupee per month, let the amount of ore collected be what it may.

Coins.

The coins are the Hallee Sicca, and Govind-Buksh Rupees, and copper pice. The Gundah is a designation equal to 4 pice, but there is no such coin.

1 Hallee Sicca	=	64 Pice.
1 Govind-Buksh	=	63 Pice.

The high price of the Hallee Sicca is a source of considerable profit to the Bunniah and Soucars, who send large quantities of copper coin to Hyderabad for the purpose of purchasing this rupee, which there is only worth 60 pice, and get remittances by bills upon the Naib.

WEIGHTS AND MEASURES.

Superficial Measure.

2 Cubits	=	1 Guz.
16 Guz	=	1 Putta.
10 Puttas	=	1 Side of Beegah.
1 Beegah	=	6,400 Square Yards.

Weights for Grain.

80 Pice	=	1 Seer.
2½ Seers	=	1 Pylec.
2 Pylecs	=	1 Consoo.
8 Consoos	=	1 Maund.
20 Maunds	=	1 Candy.

Silver and Metal Weight.

4 Goomehees (seed of the Abrus Precatorius)	} =	1 Chinnum.
2 Chinnums	=	1 Mosha.
12 Mashas	=	1 Tola.
24 Tolas	=	1 Seer.
5 Seers	=	1 Tukree.
8 Tukrees	=	1 Maund.
20 Maunds	=	1 Candy.

The mode of transit is by carts and bullocks, the former the property of the Bunniah, the latter the Brinjaries. There is a good road for both, leading from Hyderabad through Saniagram to Yelgunthul and North to Juctial and Thurumporee. This is joined by one from Yamulcoortæ, Metpullu, and Korutla ; another from Yelgunthul to Gurrapulley in the direction of Chennoor ; one from Yelgunthul to

Mode of Transit and
Communication.

Gumbeerowpett by Yamulwadda, and Sircilla ; there is also one from Sircilla to Hyderabad by Siddepett ; all these roads are open for traffic throughout the year. Communication with Hyderabad by letter is kept up by Hurkaras ; public letters are carried within the Sircar by Dhers, who relieve each other at the successive village on the way.

These are the assessment on land, the sayer or tax on goods during transit, the kullall or tax upon the drawer of toddy and distiller of arrack, and the moturpha or tax upon looms, shops, &c. The assessment upon khalsa lands amounts to Rs. 2,74,559-15-6, which sum has to be provided by the Zemindars and paid to the Naibs for transmission to the Talookdars. It will be seen on reference to the abstract appended that for the year under consideration Rs. 2,36,990-1-8 was the sum realized under the head land revenue, the deficiency when Zemindars have not sufficient influence to obtain a remission is provided for from private resources or increased exactions. The sayer and kullalee are let by contract and produced Rs. 49,853,-3-10. The moturpha is paid to the Naibs, and amounted to Rs. 8,580-6-11, thus showing with the scivac jumma, which is made up of fines, taxes on fruit trees, marriages and processions, a total of Rs. 3,00,407-8-8 as realized from all sources during the year. The jagheres produced to their holders from similar sources Rs. 53,689-14-3 ; the whole of this sum cannot be said to be entirely withdrawn from the state revenues, as some grants have been made as payment for services in the act of performance, such as that of Lingapoor, where the revenues of seven villages are assigned for the Tahreer of the Duffurwallahs ; then again of Juctial, Yelgunthul, and Codeemaul, for the repairs of their respective forts and support of the garrison ; there are in all eleven jagheres, of which four are gifts to Brahmins, four granted in consideration of the performance of certain works, and three alienated as rewards for services rendered.

The revenue is collected by three instalments at intervals of four months, the accounts are rendered by the Vakeels of the several Zemindars to the head Sheristadar, who settles them with the head Peshcar, who gives receipts signed by the Naib ; the establishment for collecting the revenue excluding the pay of the troops amounts to Rs. 12,126— or a little more than 4 per cent.

The appointment of revenue officers to each Purgunnah no longer obtains ; the boundary of every Purgunnah is known and Patails and Putwarries exist as formerly, but a Peshcar upon 15 rupees a month is now frequently responsible for the collection of one or even two Purgunnahs.

The number of men serving as peyos amounts to 585 ; of these 235 are employed under the Kiladars of Yelgunthul and Juctial, and 350 under the Naibs for police and revenue purposes : each receives three rupees and a-half monthly.

THOS. L. BELL, *Surgeon,*
3rd Nizam's Cavalry. *On Special Duty.*

Sayer Customs paid at Sircar Yelgunthul.

Jooaree	...	...	...	...	...	...	...	...	...	...	...
Moongh	...	...	...	...	...	...	...	...	...	...	...
Thoor	...	...	...	...	...	...	...	...	...	...	...
Coolthee	...	...	...	...	...	...	...	...	...	...	...
Lobya	...	...	...	...	...	...	...	...	...	...	...
Ooreed	...	...	...	...	...	...	...	...	...	...	...
Green Chillies...	...	...	...	...	...	...	...	...	...	...	...
Onions	...	...	...	...	...	...	...	...	...	...	...
Tamarind	...	...	...	...	...	...	...	...	...	...	...
Moha	...	...	...	...	...	...	...	...	...	...	...
Chenna	...	...	...	...	...	...	...	...	...	...	...
Mussoor	...	...	...	...	...	...	...	...	...	...	...
Chenna Dhall...	...	...	...	...	...	...	...	...	...	...	...

4 0 0

' HYDERABAD AFFAIRS.

										Rs.	a.	p.	
Mukkoo Jooaree—if pass through the Havalee Purgunnah pay for every 10 bullocks' load										4	0	0	
If the above articles are brought by the Mullungoor road, per 120 bullocks load...										4	0	0	
If brought from Mullungoor to Sircilla, per 120 bullocks' load										4	0	0	
If the people of Yelgunthul Sircar take the above articles to Hyderabad, pay per bullock load										0	1	9	
If they take them through Havalee, pay per bullock load...										0	1	3	
If taken from Moostoolapoorum to Siddeepett, pay per bullock load										0	1	3	
Till										}			
Saffron													
Rice													
Fenugreek Seeds													
Mohwa													
Coriander										}	0	3	0
White Thoor													
Tamarind													
Dholl—if taken over the pass, per bullock load										}			
When taken by other roads, per bullock load											0	2	3
If the above articles are taken over the pass to Hyderabad by Brinjaries, per 110 bullocks load										8	0	0	
Salt—if brought to Yelgunthul or taken to Hyderabad by Bunniah's per 10 bullocks' load										1	14	0	
Salt. If brought from Purgunnahs Husnabad, Rajgopalpett or Guzvale by the Brinjaries, for every 110 bullocks' load										18	0	0	
Do. If pass through the roads of Hunthagerry or Sircilla for 110 bullocks' load										6	0	0	
Cattle. If purchased from Yelgunthul Sircar and taken to Hyderabad for every 10 head										1	0	0	
Do. If taken from Mullungoor to Hyderabad through Moostoolapoorum, Havalee, Hunthagerry and other places, for every 10 head										0	12	0	
Sheep. If purchased from Yelgunthul Sircar and taken to Hyderabad, for every 115 head										4	0	0	
Do. If taken to Hyderabad from other places through Yelgunthul Sircar, for every 115 head										3	0	0	
Steel and Iron. If taken through the Yelgunthul Sircar, per bullock load										0	9	0	
Ghee.													
Castor Oil.													
Sweet Oil.													
Tobacco.													
Bang.										1	2	0	
Cotton. { If exported by the people of Yelgunthul, per bullock load										}			
Goor. { If imported from Purgunnahs Guzvale and Siddeepett, per bullock load											0	12	0
Coccanuts. { If taken from Mullungoor through Unthagerry and Siddeepett, per bullock load										}			
Suparree. { per bullock load											0	8	0
Black Pepper. { If taken through the Havalee, per bullock load										}			
Spices. { If taken from Havalee by Unthagerry road, touching to Ulleepoorum, per bullock load											0	8	0
Dates. {										}			
Chillies. {											0	6	0
Honey.													
Paper.													
Bangles, &c. {										}			
Paddy, &c. { If taken by the people of Yelgunthul, pay for every 110 bullocks' load											}		
Samah, &c. {												6	4	0
Paddy, Samah, &c. { If taken by the people of the Sircar and pass through the Yelgunthul Sircar, for every 10 bullocks' load										}			
Do. { If taken in abundance by the Brinjarries or other people, for every 125 bullocks' load											0	6	9
Cloth. { If taken to Hyderabad from Yelgunthul Sircar, per bundle										}			
Do. { If taken to Hyderabad by the people of Koyada, per bullock load											3	0	0
Do. { If brought from Mullungoor Sircar, for every 10 heads										}			
Do. { If brought from Husnabad Purgunnah and pass through the Havalee, for every 10 heads											0	13	0
Do. {										}			
Do. {											0	6	0
Do. { If brought from Mullungoor Sircar, for every 10 heads										}			
Do. { If brought from Husnabad Purgunnah and pass through the Havalee, for every 10 heads											1	8	0
Do. {										}			
Do. {											0	10	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

									Rs. a. p.
Young bullocks.	} If purchased and taken by the people of Yelgunthul to	Hyderabad, per each...	...	...	...	...	...	...	0 2 0
Silk Sarries.		If sold in Yelgunthul, per piece ...	...	...	...	...	...	...	0 1 0
Silk Chologies.		Do. do. per do. ...	...	...	...	...	...	...	0 0 6
Copper, Tin, &c.	} If brought and sold at Yelgunthul, per bullock load ...	...	...	...	...	...	...	...	1 8 0
Hemp.		...	...	...	...	...	per bullock load ...	...	0 4 6
Pawn.		...	...	...	...	...	per bundle ...	...	0 9 0
Ginger.	...	...	...	...	...	...	per bullock load ...	...	0 7 6
Wood	...	...	...	...	...	...	per cart ...	...	0 2 3
Gunny Bags	...	...	...	...	...	...	per bullock load ...	...	0 6 0
Indigo.	...	...	...	...	...	...	per do. ...	...	7 8 0
Opium	...	...	...	...	...	...	per chest of 6 seers ...	...	3 0 0
Sugar-candy	...	...	...	...	...	...	per bullock load ...	...	1 14 0
Bangle, Stone	...	...	...	...	...	...	per do. ...	...	0 12 0
Bangle, Ashes	...	...	...	...	...	...	per do. ...	...	0 3 9
Lac	...	...	...	...	...	...	per do. ...	...	1 0 0
Bees Wax	...	...	...	...	...	...	per do. ...	...	0 10 0
Cumlics	...	...	...	...	...	...	per bundle of 40 pieces.	...	0 9 0

Taxes on Articles brought in from the other side of the Mangeera River and sold in the Yelgunthul Sircar.

	Rs. a. p.		Rs. a. p.
Cloth, per bundle of 30 to 40 pieces.	1 8 0	Horse Shoes, per bullock load...	0 12 0
Cotton, per bale ...	0 10 0	Fenugreek Seeds per do. ...	0 4 0
Ghee ...	} 0 10 0	Saltpetre per do. ...	0 9 0
Oil ...		Iron Fillings, per do. ...	0 9 0
Tobacco ...		Green Ginger, per do. ...	0 6 0
Chillies ...		Cloves, per maund ...	0 12 0
Goor ...		Sheep, per 100 ...	3 0 0
Cocoanut ...		Other Cattle, per do. ...	12 0 0
Date per bullock load ...		Tussur, per bullock load...	4 0 0
Sugar ...		Indigo, per bullock load...	3 6 0
Cheronjee...		Bamboo, per do. ...	0 2 3
Coarse Paper ...		Bangles, per do. ...	0 12 0
Lac ...	} 0 3 0	Peas, per do. ...	0 2 0
Bees Wax ...		Tamarind with seeds do....	0 1 6
Lead ...		Black Pepper and Dried Ginger,	
Tin ...		per bullock load...	0 12 0
Pewter ...		Pawn, per do. ...	0 4 6
Brass, &c., &c., per bullock load..		Chenna, per do. ...	0 3 0
Copper ...		Green Chillies per do. ...	0 1 6
Iron ...		Gunny Bags, per do. ...	0 3 0
Steel, &c., &c., per bullock load...		Opium, per chest of 6 seers.	2 4 0
Thill ...	} 0 2 0	Sugar-candy, per bullock load ...	0 15 0
Moha ...		Silk Sarree, per piece...	0 1 6
Rice ...		Do. Cholie, per do. ...	0 0 9
Gallnuts ...		Marking Nut Seeds, per bullock	
Dhall ...		load ...	0 6 0
Tamarind...		Do. Fruit, per do. ...	0 1 6
Thoor ...		Mudder Bark, per do. ...	0 6 0
Moongh ...		Cumlics, per bundle ...	0 12 0
Salt per bullock load ...		Foreign Silk, per maund ...	1 0 0
Do. if brought by Brinjarries,		Good do. per do. ...	1 8 0
per bullock load, ...	0 2 0	Hemp, per bullock load ...	0 4 6
Garlic, per bullock load...	0 9 0	Grain of all sorts, per 120 bullocks'	
Saffron, per do. ...	0 8 0	load ...	9 6 0
Onions, per do. ...	0 1 6	Paddy, per do. do. ...	6 4 0

HYDERABAD AFFAIRS.

Taxes on Articles brought in and sold in the Pettahs of Kurreem Nuggur, Mauncondoor, Yamulwadda, Assuff Nuggur, and Yelgunthul from the Ramgheer and Mullangoor Sircars.

	Rs.	a.	p.		Rs.	a.	p.
Saffron				Country Paper	1	2	0
Castor Oil Seeds				Steel, &c., per bullock load			
Oil				Oil Cake, per do.	0	1	6
Cumlies	0	12	0	Frankincense, per do.	1	8	0
Iron				Sheep, per 100	6	0	0
Buckets for Moats, &c., per bullock load				Cloth, per bundle of 30 to 40 Pieces	4	8	0
Foreign Silk, per maund	1	0	0	Jooaree			
Cotton				Thoor			
Ghee				Moongh			
Suparee	1	8	0	Chenna	0	1	0
Sugar				Coolthy			
Chillies				Beans			
Sugar-candy				Mussoor			
Hemp				Wheat, &c., per bullock load			
Thill				Garlic, &c., per bullock load	0	9	0
Rice				Salt	0	7	6
Peas				Dried Ginger, per do.			
Moha	0	4	6	Goor per do.	0	15	0
Tamarind				Bamboos per do.	0	2	3
Gallnuts				Tussur per bundle	4	8	0
Salt				Raw Silk, per bullock load	10	8	0
Wheat Flour, &c., per bullock load.				Onion per do.	0	2	0
Gunnies				Green Chillies per do.	0	3	3
Fenugreek Seeds	0	9	0	Paddy	0	0	9
Plough Irons				Samak, per bullock load			
Pawn				Salt, brought by Brinjarries, per 150 bullocks' load at Assuff Nuggur and Yamalwadda	0	4	0
Brass, &c.				Salt, brought by Brinjarries, per bullock load, at Kurreem Nuggur and Mauncondoor	0	2	3
Coosoomba Flowers, per bullock load	1	8	0				
Tobacco	1	2	0				
Stone Cups							

Taxes on Articles brought from Ramgheer and Mullangoor Sircars, and sold in the Villages of Yelgunthul Sircars.

	Rs.	a.	p.		Rs.	a.	p.
Cloth, per bundle of 30 to 40 pieces from the people of Mauncondoor	2	8	0	Marking Nuts, per bullock load	1	0	0
Do. from the people of Kothapulle	3	7	0	Cheronjee	1	0	0
Do. from Bunniah	3	6	0	Lead, Lac, per bullock load			
Tip. per bullock load	0	9	0	Salt, if brought by Brinjarries, per bullock load	0	2	3
Foreign Silk, per maund	1	8	0	Young Bullocks, per each	0	3	6
Raw Silk, per do.	2	0	0	Full grown do. per do.	0	4	0
Hemp, per bullock load	0	9	0	Frankincense, per maund	1	8	0
Gunny Bags, per do.	0	6	0	Jooaree			
Onions, per do.	0	2	3	Moongh			
Cotton				Thoor			
Ghee				Coolthy			
Oil				Bobur Oord	0	2	0
Tobacco				Tobacco			
Goor				Moha			
Cocoanuts				Seeds			
Dates	1	0	0	Chenna			
Bangles				Peas, per bullock load			
Dried Ginger				The above if brought by Brinjarries, per 110 bullocks' load	9	6	0
Black Pepper				Paddy	6	4	0
Suparee				Samah			
Chillies				Kungonee, &c., 120 bullocks' load.	1	2	0
Sugar				Cumlies, per bundle of 40 pieces..			

PHYSICAL FEATURES AND NATURAL PHENOMENA.

List of the most important spontaneous Vegetable Productions in the Sircar Yelgunthal.

Tectona Grandis...	...	...	Too small to afford good timber.
Dalbergia Latifolia	...	...	Is very small and seldom cut.
Bassia Latifolia	...	...	{ Very plentiful, but the flower distilled only in the two Northern Purgunnahs.
Butea Frondosa	...	...
Conocarpus Latifolia	...	...	{ Grows in all parts of the Sircar ; an infusion of the flowers is sometimes used to dye cotton a bright yellow.
Mimosa Xylocarpus	...	...
Gardenia Dumetorum	...	...	{ The wood of both used for making agricultural instruments.
Phyllanthus Emblica	...	...
Ficus Racemosa...	...	...	Pounded seed used as emetic.
Calotropis Gigantea	...	...	Much used as an expectorant.
Soymeda Febrifuga	...	...	Bark used as an astringent.
Abrus Precatorius	...	...	The juice much used in skin diseases.
Mucuna Pruriens	...	...	Has febrifugal and antiseptic properties.
Justitia Paniculata	...	...	An infusion of the seeds used as a diluent.
Feronia Elephantum	...	...	Used as an anthelmintic.
Ficus Indica and Ficus Religiosa.	...	...	Much employed as a tonic and stomachic.
Cassia Fistula	...	...	Yields a gum used as an astringent.
Cassia Auriculata	...	...	Bark used as a tonic.
Hyperanthera Moringha	...	...	Pulp of seeds used as purgative.
Terminalia Chebula and Terminalia Bellerica	...	...	{ The dried powder of the seeds used in ophthalmia.
Melia Azadirachta	...	...
Webera Tetrandra	...	...	Green root employed as a stimulant.
Ocimum Basilicum	...	...	{ The dried fruit of both used as an astringent, that of T. C. is the most powerful.
	
	...	...	{ The infusion of the bark as well as its powder is considered a valuable tonic.
	
	...	...	The bark used in dysenteric complaints.
	...	...	An infusion of the seeds used in nephritic affections.

List of Villages on the banks of the Gungah and Godavery where Ferries are established and Money collected.

In Purgunnah Vempullee 3 villages, viz., Goomeral Donechand, Balloocondah, and Boenapullee, as follows :—

									Rs.	a.	p.
Men	...	...	...	...	...	...	each	...	0	1	0
Horso	...	...	...	...	...	...	do.	...	0	2	0
Bullock	...	...	...	...	...	...	do.	...	1	2	0
Grain of all sorts	...	...	...	...	...	...	per candy	...	1	8	0
Carts with Teak Timber	...	...	...	...	...	...	each	...	0	12	0
Do. with small do.	...	...	...	...	...	...	do.	...	0	10	0
Do. with smaller do.	...	...	...	...	...	...	do.	...	0	8	0
Empty Carts	...	...	...	...	...	...	do.	...	0	4	0
Bullocks with Teak Wood	...	...	...	...	...	...	per 100	...	3	12	0

In Purgunnah Hursecottah 3 villages, viz., Rungasagur, Kunnoor, and Dhontapoorem, as follows :—

									Rs.	a.	p.
Men	...	...	...	...	...	...	each	...	0	0	9
Cattle	...	...	...	...	...	...	do.	...	0	1	0
Small Village Carts (empty)...	...	...	...	...	...	...	do.	...	0	1	6
Bullocks loaded with Teak Wood, Grain, &c.	...	...	...	...	...	...	per 100	...	2	0	0

(HYDERABAD AFFAIRS.

Receipts of the Jagheer of Yamulwadah exclusive of Land Revenue.

			Per Year.			Total.		
			Rs.	a.	p.	Rs.	a.	p.
Kullal contract at the rate of Rs. 106 monthly...	...	...	1,272	0	0	1,272	0	0
Paid by Bunniah	at Rs. 11½ per mensem...	...	135	0	0			
„ by Goldsmiths	at Rs. 4 per do. ...	...	48	0	0			
„ by Weavers	at Rs. 3½ per do. ...	...	42	0	0			
„ by Tobacconists	at Rs. 3 per do. ...	...	36	0	0			
„ by Tailors	at Rs. 1½ per do. ...	...	15	0	0			
„ by Butchers	at As. 8 per do. ...	...	6	0	0			
„ by Painters	at As. 8 per do. ...	...	6	0	0			
„ by Bangle dealers	at As. 4 per do. ...	...	3	0	0			
„ by Shoe makers	at As. 4 per do. ...	...	3	0	0			
„ by Cotton beaters	at Rs. 1½ per do. ...	...	21	0	0			
„ by Vegetablesellers	at As. 4 per do. ...	...	3	0	0			
„ by Oil sellers	at Rs. 14 per do. ...	...	168	0	0			
						501	0	0
Collection of Transit duties at the rate of Rs. 14 per mensem	...	...	168	0	0			
Paid by Bunniah for articles purchased	...	...	295	4	0			
						463	4	0
Paid by the visitors of the Temples	...	...	...	...	...	1,026	14	3
Grand Total...						3,263	2	3

The above sum is distributed as follows :—

FOR RAJESWUR SAMY'S TEMPLE.

1 Candies and 18 Maunds Paddy at Rs. 20 per Candy ...	...	...	198	0	0			
1 Candies and 18 Maunds Oil, at Rs. 17 per Maund ...	...	...	217	0	0			
Salt, Chillies and Dhol, &c. ...	...	...	142	0	0			
Bheemanah Dea's Poojah ...	...	...	18	0	0			
For Brahmīn's Almanac ...	...	...	7	10	3			
For Gopal Samy's Poojah, &c. ...	...	...	23	0	0			
Free Ramachunder's Day ...	...	...	11	8	0			
For 9 days' Poojah in April ...	...	...	19	5	3			
„ Dusarah Expenses ...	...	...	42	8	0			
„ Deepavalee Feast ...	...	...	8	12	0			
„ Fire Poojah in August ...	...	...	4	4	0			
„ Kristna Samy's Birth-day ...	...	...	6	0	0			
„ Full Moon Poojah, once in four months ...	...	...	2	6	6			
„ Sarcē Cholee, &c. &c., for Davee ...	...	...	7	8	0			
						707	14	0
„ Mootsuddes, &c., in the temples, at Rs. 20 per month ...	...	...	240	0	0			
„ Jowans, &c., in the temple, at Rs. 29 per month ...	...	...	357	0	0			
„ The Darogah of the temples ...	...	...	180	0	0			
						777	0	0
„ Music Drums, &c., at Rs. 45 per mensem ...	...	...	540	0	0			
„ Beggars at Rs. 6 2 0 per do. ...	...	...	73	8	0			
„ Rajah Bag Durgah at Rs. 2½ per do. ...	...	...	30	0	0			
„ Munnar Samy at Re. 1 per do. ...	...	...	12	0	0			
„ Gopal Samy's Jyaware at Rs. 2 per do. ...	...	...	24	0	0			
„ Gopal Samy's Poojah in August ...	...	...	16	0	0			
„ Nagachoutee Feast ...	...	...	3	8	0			
„ Hooly Feast ...	...	...	9	12	0			
„ Seorathree-day, presents, sweetmeats for Patals, &c. ...	...	...	38	0	0			
„ Moharum Ashurkhana ...	...	...	26	4	0			
„ Gosains, Doomors, &c. ...	...	...	14	4	0			
„ Deo's Morning Poojah in January ...	...	...	2	0	0			
„ Poolary Jowan ...	...	...	9	0	0			
						798	4	0
„ Zemindar's Allowance ...	...	...	...	...	...	700	0	0
„ Stationery, Travellers, &c. ...	...	...	...	...	...	280	0	0
Total ...Rs.						3,263	2	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Cost of Manufacture 1½ Maunds of Iron.

					Pice.	Paddy. Seers.
Wages to pound the stones sufficient for two butties	...	...	...	...	0	3
Bellows man for the butties, per day	...	...	...	...	3	12½
Blacksmith, Hammer man, and Bellows boy to purify 2½ maunds	...	...	...	...	3	12½
Blacksmith to reduce the above into small pieces	...	...	...	...	2	4½
					8	32 or

					Annas	11
Price of 6 baskets of stones for 2 butties	...	...	...	...	4	
„ 5 do. hard charcoal	...	...	...	...	4	
„ 4 do. teak do.	...	...	...	...	5	

Ro. 1 8

Tools used in the process are,

- 4 Bellows.
- 2 Sledge Hammers.
- 2 Large pairs of Tongs.
- 2 Small do. do.
- 3 Hand Hammers, large.
- 3 Hand Hammers, small.
- 1 Crow Bar.
- 4 Bellow's Pipes.
- 2 Iron Rods.

The quantity drawn from the two butties is 2½ maunds, which is reduced to 1½ by beating and clearing it of scoriæ.

General Statistical Table of the Sircar Yelgunthal showing the number of Villages, Houses, Tanks, Wells and Moats, the number of People of different descriptions composing the Population and their employment, the number of Cattle, the amount of Revenue, and the sources from which it is derived.

		VILLAGES.						TANKS AND WELLS.											
Number.	No. of Villages.	Inhabited.		Deserted.		Total.		Large Tanks.		Small Tanks.		Wells.							
		Villages.	Hamlets.	Total.	Villages.	Hamlets.	Total.	In Repair.	Out of Repair.	Total.	In Repair.	Out of Repair.	Total.						
1	45	48	36	84	...	15	15	48	51	99	41	17	58	71	176	247	438	323	761
2	37	33	11	44	4	12	16	37	23	60	48	24	72	31	86	117	186	118	304
3	62	59	34	93	3	...	3	62	34	96	48	5	53	84	79	163	234	187	391
4	41	35	20	55	6	...	6	41	20	61	27	11	38	30	172	202	198	393	571
5	31	36	5	31	1	18	19	27	23	50	34	3	37	32	90	122	351	269	620
6	37	25	10	35	11	12	23	36	22	58	13	14	27	32	132	164	234	415	649
7	50	46	12	58	4	4	8	60	16	66	16	24	40	32	115	147	122	414	536
8	30	30	7	37	1	1	2	31	8	39	12	26	38	14	81	95	183	383	566
9	22	19	9	28	3	7	10	22	16	38	13	8	21	24	52	76	100	88	188
10	21	19	3	22	2	5	7	21	8	29	15	8	23	13	76	89	193	217	410
11	10	9	...	9	1	3	4	10	3	13	5	2	7	5	32	37	49	119	168
12	12	12	3	15	1	...	1	13	3	16	11	4	15	22	34	56	104	429	533
13	25	26	11	37	...	5	5	26	16	42	25	2	27	26	100	126	238	272	510
14	11	11	2	13	...	1	1	11	3	14	16	1	17	16	31	47	83	53	126
15	51	59	18	67	4	21	25	53	39	92	43	19	62	61	164	225	558	438	996
16	18	12	13	25	4	10	14	16	23	39	13	3	16	20	88	108	717	188	905
17	19	19	7	26	...	...	...	...	7	28	18	9	27	29	119	148	188	209	397
18	29	30	4	34	7	7	14	37	11	48	15	11	26	25	66	91	107	142	249
		508	205	713	52	121	173	560	326	886	413	191	604	567	1,693	2,260	4,233	4,657	8,890
51		44	27	71	5	19	24	49	46	95	37	24	61	54	141	195	644	431	1,075
		552	232	784	57	140	197	609	372	981	450	215	665	621	1,834	2,455	4,877	5,088	9,965
		Grand Total																	

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	TANKS AND WELLS, TOTAL.			PLOUGHS.			CATTLE.								
			In Repair.	Out of Repair.	Total.	Moats.	Rice Ploughs.	Dry Ploughs.	Total.	Bullocks,		Buffaloes.		Total.			
										Ploughing.	Other Cattle.	Ploughing.	Other Cattle.		Ploughing.	Other Cattle.	Ploughing.	Other Cattle.
1	45	Havalee Kutoor	550	516	1,066	562	723	802	1,525	2,962	630	3,592	879	98	3,841	728	4,569
2	37	Nizambad	205	228	433	275	620	370	990	1,967	176	2,143	508	40	2,472	216	2,691
3	62	Racherlah	336	271	607	310	552	967	1,519	2,645	124	2,769	932	22	3,577	146	3,723
4	41	Vejiaghery Velchal	235	576	811	235	359	516	875	1,918	378	2,296	207	140	1,125	518	2,843
5	31	Nunthaghere Nameleconda	417	362	779	502	344	358	702	1,480	406	1,886	445	91	1,925	497	2,422
6	37	Korootla	279	561	840	394	349	419	768	1,593	313	1,911	372	64	1,970	377	2,347
7	50	Sanegurum	170	553	723	...	19	644	663	2,382	186	2,568	94	76	2,476	262	2,738
8	30	Therecondah	209	490	699	277	197	217	414	987	2	989	121	2	1,108	4	1,112
9	22	Polass	137	148	285	178	157	176	333	641	80	721	113	44	754	124	878
10	21	Anthagery	221	301	522	190	201	347	548	982	148	1,130	199	48	1,181	196	1,377
11	10	Vempully	59	153	212	77	84	114	198	351	97	448	62	22	413	119	532
12	12	Namapully	137	467	604	147	104	175	279	443	88	531	183	44	626	132	758
13	25	Koaram	289	374	663	337	405	469	874	1,824	96	1,920	398	56	2,222	152	2,374
14	11	Moncondoor	115	85	200	113	126	124	250	502	20	522	133	...	635	20	655
15	51	Velthe	662	621	1,283	817	841	640	1,481	2,829	430	3,259	860	...	3,689	430	4,119
16	18	Yamulvadah	750	279	1,029	3	310	317	627	1,167	527	1,694	431	138	1,598	665	2,263
17	19	Velloolah	235	337	572	296	320	272	592	1,383	15	1,398	601	...	1,984	15	1,999
18	28	Noostlaroorum	147	219	366	50	118	399	517	994	35	1,029	91	19	1,085	54	1,139
		Arsekotah															
		Total	5,213	6,541	11,754	4,763	5,829	7,326	13,155	27,055	3,751	30,806	6,629	904	33,684	4,655	38,339
	51	Jagheer Villages	736	596	1,332	730	1,004	993	1,997	4,355	886	5,241	1,133	194	5,488	1,080	6,568
		Grand Total	5,949	7,137	13,086	5,493	6,833	8,319	15,152	31,410	4,637	36,047	7,762	1,098	39,172	5,735	44,907

HYDERABAD AFFAIRS.

CATTLE.													
Number.	No. of Villages.	Cows.			Buffaloes.			Total.			Horses.		
		Milch.	Young.	Calves.	Total.	Milch.	Young.	Total.	Milch.	Young.	Calves.	Total.	Total.
1	45	5,706	1,410	3,197	10,313	4,335	1,219	2,554	7,041	1,410	4,416	12,867	118
2	73	3,140	891	1,488	5,519	656	473	1,139	3,806	891	1,961	6,658	75
3	62	4,195	1,126	2,530	7,851	1,827	1,344	3,171	6,022	1,126	3,874	11,022	83
4	41	3,722	1,092	3,214	8,028	762	792	1,554	4,484	1,092	4,006	9,582	39
5	31	3,445	891	2,061	6,397	796	739	1,535	4,241	891	2,800	7,932	60
6	37	3,740	789	1,590	6,119	692	532	1,224	4,432	789	2,122	7,343	65
7	50	2,650	852	1,444	4,946	602	540	1,142	3,252	852	1,984	6,088	10
8	30	1,455	581	1,342	3,378	278	481	759	1,733	581	1,823	4,137	8
9	22	1,454	388	811	2,653	295	286	581	1,749	388	1,097	3,234	26
10	21	837	310	425	1,572	225	155	380	1,062	310	580	1,952	16
11	10	808	109	442	1,359	210	146	356	1,018	109	588	1,715	16
12	12	1,100	260	490	1,850	130	74	204	1,230	260	564	2,054	26
13	25	2,974	872	1,408	5,254	486	310	796	3,460	872	1,718	6,050	99
14	11	1,195	531	551	2,277	213	175	388	1,408	531	726	2,665	13
15	51	4,163	1,270	2,742	8,175	983	749	1,732	5,146	1,270	3,491	9,907	97
16	18	1,537	841	891	3,269	747	615	1,362	2,284	841	1,506	4,631	47
17	19	3,693	1,482	1,590	6,765	655	491	1,146	4,348	1,482	2,081	7,911	29
18	29	1,139	310	643	2,092	282	178	460	1,421	310	821	2,552	7
Total		46,953	14,005	26,859	87,817	14,184	9,249	20,483	58,137	14,005	36,158	1,08,300	884
Jagheer Villages		6,254	1,674	4,013	11,941	1,896	1,737	3,633	8,150	1,674	5,751	15,575	182
Grand Total		53,207	15,679	30,972	99,758	13,080	11,036	24,116	66,287	15,679	41,909	1,23,875	1,016

PHYSICAL FEATURES AND NATURAL PHENOMENA.

CATTLE.

		CATTLE.													
Number.	No. of Villages.	Asses.			Sheep.			Grand Total.			Cattle.				
		Asses.	Colts.	Total.	Sheep.	Lambs.	Total.	Large.	Young.	Calves.	Total.	Sowcars.	For Hire.	Total.	
1	45	31	15	46	6,560	2,723	9,273	17,543	1,410	7,920	26,873	148	11	159	
2	37	62	24	86	2,523	843	3,366	8,915	891	3,070	12,876	...	62	62	
3	62	...	...	...	5,018	2,621	7,639	14,667	1,126	6,674	22,467	36	102	138
4	41	...	6	6	4,661	2,775	7,436	11,297	1,092	7,317	19,706	...	100	100	
5	31	...	...	...	3,064	1,199	4,263	9,274	891	4,512	14,677	...	76	76
6	37	9	5	14	3,579	1,361	4,940	10,044	789	3,876	14,709	57	...	57	
7	50	...	...	...	3,181	1,884	5,065	8,914	852	4,135	13,901	31	90	121
8	30	...	...	...	482	212	694	3,330	581	2,040	5,951	...	...	...
9	22	2	...	2	1,470	939	2,409	3,994	388	2,167	6,549	21	...	21	
10	21	...	...	...	880	375	1,255	3,129	310	1,161	4,000	18	7	25
11	10	4	3	7	1,218	566	1,784	2,663	109	1,282	4,054	15	...	15	
12	12	3	2	5	1,800	950	2,750	3,676	260	1,657	5,593	30	...	30	
13	25	23	20	43	6,718	2,450	9,168	12,493	872	4,369	17,734	96	7	103	
14	11	...	...	...	1,225	720	1,945	3,277	531	1,470	5,278	46	2	48
15	51	19	6	25	4,768	2,458	7,226	13,632	1,270	6,472	21,374	105	4	109	
16	18	...	...	...	1,396	568	1,964	5,308	841	2,756	8,905	81	67	148
17	19	...	...	...	4,972	2,080	7,052	11,328	1,482	4,181	16,991	55	1	56
18	29	...	...	...	981	420	1,401	3,492	310	1,297	5,099	91	...	91
Total		153	81	234	54,486	25,144	79,630	1,46,976	14,005	66,356	2,27,337	830	529	1,359	
Jagheer Villages		55	44	98	11,867	5,364	17,231	25,681	1,675	12,299	39,654	123	143	266	
Grand Total		207	125	332	66,353	30,508	96,861	1,72,657	15,679	78,655	2,66,991	953	672	1,625	

HYDERABAD AFFAIRS.

MEERASDARS.																	
Number.	No. of Villages.	Patails.					Putwarries.					Deshmooks.					
		Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	
1	45	117	257	278	242	777	60	85	103	62	250	...	...	...	...	...	...
2	37	95	221	223	162	606	26	41	47	13	101	...	...	...	...	...	...
3	62	48	93	112	122	327	39	64	63	51	178	15	30	44	32	106	...
4	41	41	97	110	115	322	19	29	29	18	76	...	...	...	...	...	...
5	31	16	29	34	30	93	18	28	29	17	74	11	17	18	16	51	...
6	37	18	52	55	71	178	26	30	38	20	88	8	22	30	21	73	...
7	50	23	34	37	34	105	11	17	12	15	44	...	1	...	...	1	...
8	30	20	39	56	63	158	4	4	6	1	11	...	...	...	...	...	...
9	22	12	26	27	25	79	10	10	13	4	27	5	11	13	16	40	...
10	21	20	30	34	45	109	6	6	10	12	28	...	...	...	...	...	...
11	10	7	21	19	18	58	13	13	12	12	37	2	3	3	3	9	...
12	12	10	19	26	34	79	1	2	2	4	8	4	11	11	20	42	...
13	25	66	169	183	173	525	34	50	56	35	141	...	...	...	...	...	...
14	11	23	42	40	45	127	10	11	13	9	33	...	...	...	...	...	...
15	51	118	258	278	215	751	34	52	59	34	145	...	...	...	...	...	...
16	18	18	32	34	24	90	12	16	17	3	36	1	1	1	5	7	...
17	19	23	57	52	76	185	20	31	24	3	58	3	3	3	3	9	...
18	29	14	30	29	34	93	1	1	2	2	5	2	2	4	2	8	...
Total		689	1,506	1,627	1,528	4,661	344	490	535	315	1,340	51	104	127	118	346	...
Jagheer Villages.....		55	135	145	133	413	45	69	84	63	216	3	11	8	3	22	...
Grand Total.....		744	1,641	1,772	1,661	5,074	389	559	619	378	1,556	54	112	135	121	368	...

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		MEERASDARS.																	
Number.		No. of Villages.	Deshpondias.				Sir Deshmooks.				Sir Deshmoodias.				Brahmins.				
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.		
1	45	{	8	10	13	13	35	1	1	2	1	4	..	..	43	63	75	51	189
2	37		11	19	55	23	97	2	1	5	3	9	1	1	22	34	28	18	80
3	62		2	7	13	8	28	..	..	..	..	..	..	..	..	..	..	..	..
4	41		5	8	11	7	26	6	12	15	13	40	..	..	..	..	..	..	..
5	31		2	6	5	..	11	..	..	..	..	..	..	..	..	..	..	..	..
6	37		8	9	12	11	32	..	..	..	..	..	..	..	13	21	29	32	82
7	50		..	1	..	..	1	..	1	..	..	1	..	1	3	6	4	2	12
8	30		2	4	4	3	11	..	..	..	..	..	..	..	4	4	12	4	20
9	22		2	..	..	..	..	..	..	..	..	..	..	..	6	6	5	7	18
10	21		1	1	2	3	6	..	..	..	..	..	..	..	..	..	..	..	..
11	10		2	2	2	6	10	..	..	..	..	..	..	..	..	..	..	..	..
12	12		3	7	10	12	29	..	..	..	..	..	..	..	..	..	..	..	..
13	25		1	1	4	1	6	..	..	..	..	..	1	1	30	51	48	30	129
14	11		..	..	..	..	..	1	..	..	..	2	..	..	11	18	18	18	64
15	51		4	6	5	8	19	..	1	1	..	..	2	..	34	60	56	31	147
16	18		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	19		4	6	8	6	20	..	..	..	..	..	..	..	..	..	..	..	..
18	29		2	2	3	..	5	..	..	..	..	..	..	..	..	..	..	..	..
Total			59	94	153	105	352	19	16	23	17	56	2	3	8	288	296	206	790
51			9	13	15	14	42	1	1	1	..	2	1	4	46	89	109	55	244
Grand Total			68	107	168	119	394	11	17	24	17	58	3	5	12	377	396	261	1,034

HYDERABAD AFFAIRS.

MEERASDARS.

MEERASDARS.																					
No. of Villages.		Profiths.				Munrawars.				Carpenters.				Blacksmiths.							
		Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.					
1	45	...	...	...	...	...	...	...	...	...	...	49	84	86	89	36	64	73	53	190
2	37	...	...	...	...	...	...	...	...	...	...	29	57	56	42	28	42	44	25	111
3	62	35	53	65	45	163	...	...	...	...	...	58	100	95	111	41	73	78	69	220
4	41	14	20	15	13	48	...	...	...	...	...	20	32	30	36	16	32	33	28	93
5	31	22	29	33	21	83	...	...	...	...	...	23	38	33	32	26	40	42	35	117
6	37	27	40	41	31	112	3	4	3	6	13	20	37	42	45	13	20	20	23	63	
7	50	...	...	...	...	...	...	...	...	...	...	26	43	40	32	21	32	31	30	93
8	30	...	...	...	...	...	...	...	...	...	...	13	17	23	23	15	28	26	27	81
9	22	12	16	12	8	36	...	...	...	...	...	15	19	20	16	12	16	16	10	42
10	21	9	9	7	20	36	...	...	...	...	...	15	18	19	7	44	17	19	18	53
11	10	1	1	1	2	4	...	...	...	...	...	5	6	7	6	19	4	6	8	18
12	12	6	11	10	13	34	...	...	...	...	...	8	12	12	20	44	5	9	11	28
13	25	32	60	70	69	189	21	40	36	24	100
14	11	9	14	13	11	38	11	17	15	14	46
15	51	46	68	69	58	195	44	65	61	49	175
16	18	18	10	25	19	63	19	24	27	24	75	18	35	32	18	85
17	19	15	26	22	16	64	13	15	17	15	47	13	25	20	14	59
18	29	2	2	2	3	7	10	20	16	17	53	10	14	16	9	39
Total		161	226	233	191	650	3	4	3	6	13	410	664	675	643	1,982	351	572	576	455	1,613
Jagheer Villages...		52	100	103	101	304	42	79	88	78	245
Grand Total		161	226	233	191	650	3	4	3	6	13	462	764	778	744	2,286	393	651	564	543	1,858

PHYSICAL FEATURES AND NATURAL PHENOMENA.

MEERASDARS.																	
Number.	No. of Villages.	Dhobies.				Barbers.				Koomars.				Total.			
		Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.		Women.	Children.	
1	45	113	178	187	156	521	47	57	72	74	213	49	86	83	87	256	
2	37		109	109	86	304	34	49	49	37	135	22	42	44	31	117	
3	62		208	208	247	663	42	76	77	63	216	41	65	74	67	206	
4	41	51	81	87	96	264	19	36	36	28	100	18	26	25	33	84	
5	31		56	80	87	248	28	38	44	45	127	25	42	48	47	137	
6	37		54	75	77	242	21	41	38	34	113	20	40	41	44	125	
7	50	51	83	81	71	235	26	40	37	32	109	26	37	36	41	114	
8	30		31	44	48	71	163	11	16	17	15	48	12	16	17	24	57
9	22		24	33	29	30	92	8	11	10	7	28	11	14	14	20	48
10	21	32	40	38	45	123	17	21	19	15	55	22	27	30	31	88	
11	10		9	23	22	27	72	5	8	8	6	22	3	5	6	5	16
12	12		18	23	25	36	84	5	7	7	11	25	8	11	11	16	38
13	25	48	76	75	74	225	26	53	47	40	140	17	28	28	43	99	
14	11		18	31	30	32	93	8	13	12	11	36	6	14	15	13	42
15	51		96	149	155	128	432	40	70	73	47	190	38	56	63	58	177
16	18	47	77	72	44	193	18	28	27	21	76	18	37	35	23	95	
17	19		27	44	43	49	136	15	27	24	24	75	13	26	27	27	80
18	29		30	39	43	49	131	12	14	18	22	54	14	17	18	18	53
		904	1,393	1,416	1,412	4,221	382	615	615	532	1,762	363	589	615	628	1,832	
51		111	199	220	199	618	56	123	116	104	343	52	96	90	93	279	
		1,015	1,592	1,636	1,611	4,839	438	738	831	636	2,105	415	685	705	721	2,111	
		Grand Total															

PHYSICAL FEATURES AND NATURAL PHENOMENA.

MEERASDARS.

MEERASDARS.																	
No. of Villages.			Measurers.			Bagarees.			Dhars and Chummars.								
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	{	125	170	178	179	527	196	252	284	224	760	240	373	373	380	1,126
2	37		88	124	110	110	353	192	264	238	179	681	172	263	277	220	760
3	62		112	190	198	224	612	6	8	10	6	24	255	425	434	529	1,388
4	41		42	62	68	69	199	22	40	36	34	110	131	228	221	275	724
5	31		54	70	79	81	230	29	35	42	27	104	108	160	166	155	481
6	37		52	87	89	92	268	7	13	10	6	29	112	157	162	183	502
7	50		72	104	112	127	343	55	75	78	64	217	181	290	289	228	807
8	30		15	19	26	28	73	2	2	3	4	9	193	265	277	262	824
9	22		35	52	48	49	149	...	...	...	...	...	65	80	78	104	262
10	21		18	18	19	20	57	18	18	18	15	51	54	64	63	90	217
11	60	16	22	26	27	75	12	13	18	25	56	46	66	59	84	209	
12	12	16	21	24	28	73	36	36	40	42	118	32	36	38	57	131	
13	25	64	92	99	103	294	12	17	18	14	40	129	191	186	201	578	
14	11	23	30	27	23	80	2	2	2	2	6	64	86	98	116	300	
15	51	137	203	190	174	567	201	277	233	201	711	228	344	364	296	1,094	
16	18	31	48	45	35	128	21	31	31	22	84	102	173	157	124	454	
17	19	39	68	64	77	209	1	4	4	4	12	125	193	193	221	606	
18	29	28	40	44	41	125	11	12	15	14	41	74	105	101	95	391	
			967	1,420	1,455	1,487	4,362	823	1,089	1,080	883	3,062	2,311	3,499	3,535	3,650	10,684
			95	125	124	133	382	43	64	65	41	171	408	672	675	697	2,044
51			1,062	1,545	1,579	1,629	4,744	866	1,163	1,146	924	3,233	2,719	4,171	3,210	3,347	12,738

HYDERABAD AFFAIRS.

Number.	Number of Villages.	MEERASDARS.				LAND CULTIVATORS OR RYOTS.				LAND CULTIVATORS.						
		Grand Total.				Koonbiee.				Elmae.						
		Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	1,172	1,929	1,946	1,736	5,511	323	536	569	479	1,584	96	177	184	163	524
2	37	860	1,377	1,412	1,038	3,827	186	402	447	289	1,138	39	62	64	30	156
3	62	921	1,555	1,639	1,770	4,984	498	952	994	966	2,912	131	231	231	262	724
4	41	442	764	785	842	2,391	258	465	462	428	1,355	24	37	45	39	121
5	31	511	745	792	704	2,341	275	508	555	417	1,480	91	156	175	157	488
6	37	462	738	785	809	2,332	165	294	354	287	935	2	6	7	5	18
7	50	513	789	781	700	2,270	308	465	473	396	1,334	...	...	...	...	...
8	30	333	480	531	578	1,589	121	216	150	217	583	...	...	...	...	...
9	22	253	346	335	341	1,022	93	141	139	133	413	12	17	16	14	47
10	21	252	295	306	341	142	163	299	221	172	593	32	39	39	39	117
11	10	142	204	210	251	665	41	78	77	90	245	7	9	12	15	36
12	12	159	217	235	314	766	60	86	99	130	315	5	6	7	11	24
13	25	512	879	906	832	2,617	307	567	552	553	1,672	...	...	...	...	...
14	11	190	286	291	299	876	63	106	94	100	300	...	...	...	...	...
15	51	1,127	1,769	1,760	1,414	4,943	318	544	595	476	1,615	62	116	119	80	315
16	18	375	602	582	435	1,619	277	613	615	461	1,689	12	23	21	14	58
17	19	342	575	551	594	1,720	194	350	372	367	1,089	14	30	26	22	78
18	29	221	312	324	326	962	99	146	146	131	423	23	43	35	23	101
Total		8,787	13,762	14,191	13,324	41,277	3,749	6,659	6,914	6,992	19,675	550	952	981	874	2,807
Jagheer Villages		1,141	1,929	1,988	1,848	5,765	566	1,183	1,196	827	3,206	62	109	108	107	324
Grand Total		9,928	15,691	16,179	15,172	47,042	4,315	7,852	8,110	6,919	22,881	612	1,061	1,089	981	3,131

PHYSICAL FEATURES AND NATURAL PHENOMENA.

LAND CULTIVATORS.																		
Number.		No. of Villages.	Bakauls.				Toddy Sellers.				Brahmins.				Jungums.			
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	
1	45	{ Haralee Kutoor } Nizambad Racherlah Vejiaghery Velchal	40	61	63	57	181	86	128	150	146	424	16	27	23	15	65	...
2	37		16	33	35	26	94	18	37	36	23	96	...	...	...	...	...	...
3	62		14	36	30	32	98	28	56	60	49	165	...	...	...	...	...	...
4	41		9	18	17	18	53	10	18	25	35	78	...	...	...	...	...	...
5	31		9	27	25	22	74	...	...	...	...	...	...	...	...	...	...	...
6	37		15	34	35	23	92	...	...	...	...	...	...	...	...	...	...	...
7	50		Nanthaghery Naneleconda	20	26	30	22	78	5	5	7	5	17	...	...	...	...	...
8	30			19	22	28	31	81	24	31	30	40	101	...	...	...	...	...
9	22			7	12	12	11	35	...	...	...	...	...	...	...	...	...	...
10	21			6	4	7	4	15	16	22	25	20	67	9	12	10	3	25
11	10	Vempully.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	12		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	25		Korurum	11	19	22	19	60	23	51	56	45	152	5	8	7	5	20
14	11			10	19	22	26	67	8	8	8	14	30	4	7	6	6	19
15	51	20		43	37	21	106	119	200	215	168	583	5	7	3	3	13	
16	18	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	19	Velloolah.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	29		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			3	4	4	5	13	...	...	...	...	...	...	...	...	...	...	...
Total			199	363	367	317	1,047	343	556	612	545	1,713	44	62	50	36	148	68
Jagheer Villages			16	20	20	14	54	...	...	...	...	...	109	196	206	182	584	2
Grand Total ...			215	383	387	331	1,101	343	556	612	545	1,713	153	258	256	218	732	70
									</									

HYDERABAD AFFAIRS.

			LAND CULTIVATORS.														
Number.	No. of Villages.	NAMES OF THE PARGANNAHS AND TALUKS.	Moonoorwars.				Telingas.				Shepherds.						
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	Havalee Kutcoor.....	...	...	...	...	236	389	400	346	1,135	44	72	80	55	207
2	37	Nizambed.....	66	112	...	87	49	61	71	45	177	25	44	40	37	121	
3	62	Reddichal.....	...	...	...	...	253	430	484	553	1,467	41	98	119	88	305
4	41	Vejjagery Velchal.....	...	...	...	...	...	...	...	...	...	8	20	17	18	55
5	31	Nunthachere Namelecondra	184	342	357	344	1,043	...	...	...	...	34	47	53	44	144
6	37	Korvetla	62	109	114	109	332	10	17	15	...	23	7	7	7	21	
7	50	Saneegurum	58	98	100	91	289	4	9	6	...	2	...	...	...	73
8	30	Thevecondah	109	160	153	149	462	70	89	92	88	269	19	28	28	65	
9	22	Pelass	111	179	186	194	559	32	53	46	46	145	13	17	20	28	
10	21	Anthegery	18	26	26	21	73	4	6	6	2	14	13	16	17	18	
11	10	Vempully.....	120	134	134	95	363	4	6	4	3	13	32	33	36	34	
12	12	Namapully	16	21	23	25	69	...	...	...	...	...	5	7	5	9
13	25	Koarum	27	32	33	43	108	2	2	5	4	11	17	20	20	31	
14	11	Mooncondoor.....	13	23	22	13	58	64	105	96	102	303	30	57	47	48	
15	51	Veltie	9	12	13	12	37	13	18	19	23	60	7	9	10	7	
16	18	Yanulvadah.....	202	332	328	311	971	40	93	94	65	252	33	54	56	49	
17	19	Vellecolah	97	201	198	102	501	...	...	...	...	...	9	18	14	11
18	29	Noosthaporum	30	53	55	60	168	...	...	...	...	...	8	9	11	18
		Areekotab.....	136	201	190	141	532	...	...	...	...	...	13	19	19	14
		Total.....	1,258	2,035	2,051	1,797	5,883	781	1,272	1,343	1,298	3,913	353	575	599	533	1,707
	51	Jagheer Villages.....	151	247	272	222	741	20	24	24	31	79	23	33	33	39	105
		Grand Total.....	1,409	2,282	2,323	2,019	6,624	801	1,296	1,367	1,329	3,992	376	608	632	572	1,812

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		LAND CULTIVATORS.																			
		NAMES OF PURGUNNAHS AND TALOOKS.				Moosteegollaloo.				Kayeths and Rajpooths.				Naikwarrees.				Munnakavalecars.			
Number.	No. of Villages.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	...	...	...	...	...	6	13	8	2	23	...	...	...	...	...	...	...	...	...	...
2	37	1	4	2	2	8	10	20	19	12	51	3	3	3	4	10	...	...	...	...	...
3	62	...	...	...	...	...	5	16	16	22	54	...	...	...	...	...	...	...	...	...	...
4	41	7	13	14	9	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	31	...	...	...	...	...	10	15	20	15	50	45	90	104	76	270	118	147	154	129	430
6	37	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	50	...	...	...	...	...	1	1	1	1	3	1	1	1	2	4	...	...	...	...	...
8	30	8	12	9	21	42	1	1	1	2	4	1	1	2	1	4	...	...	...	...	...
9	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	21	5	6	5	10	21	...	...	...	...	...	6	8	8	9	25	...	...	...	...	...
11	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	12	...	...	...	...	...	...	...	...	...	...	6	11	11	19	41	...	...	...	...	...
13	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55	51	2	2	2	2	6	2	4	3	2	9	2	4	4	2	10	...	...	...	...	...
16	18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	29	...	...	...	...	...	...	...	...	...	...	11	12	22	15	49	...	...	...	...	...
Total		23	37	32	44	113	35	70	68	56	194	75	139	155	128	413	118	147	154	129	430
Jegheer Villages ...		1	1	1	1	3	14	20	30	10	60	5	10	11	9	30	...	...	...	...	...
Grand Total		24	38	33	45	116	49	90	98	66	254	80	140	166	137	443	118	147	154	129	430

LAND CULTIVATORS.

HYDERABAD AFFAIRS.

Number		No. of Villages.	Village Peons.				Necrudysars.				Thalarees.				Musselmén.			
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	
1	45	(Havalee Kutdoor..... )	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
2	37	{ Nizambad..... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
3	62	Racherlah.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	41	Vejiaghery Velchal.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	31	Nanthaghery Nam-deonda .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	43
6	37	Kerootla .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
7	50	Saneegurum .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
8	30	Therecondah	29	43	42	34	...	...	...	...	...	...	...	...	...	...	...	...
9	22	Polasa	64	79	93	92	...	...	...	...	...	...	...	...	...	...	...	...
10	21	Anthagery .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	10	Vempully.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	12	Namapully .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	25	Koaram.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	11	Moncondoor	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
15	51	Veltie	2	3	3	2	...	...	...	...	...	...	...	...	...	...	...	52
16	18	Yamulvadah.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	19	Velloolah .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	29	Noostlapoorum.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Ars Kotah.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Total.....	96	126	139	128	393	9	17	17	17	51	41	59	55	71	185	251
51		Jagheer Villages.....	43	70	67	83	220	2	6	6	4	16	7	9	8	7	24	29
		Grand Total.....	139	196	206	211	613	11	23	23	21	67	48	68	63	78	209	280

PHYSICAL FEATURES AND NATURAL PHENOMENA.

LAND CULTIVATORS.																		
Number	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	Diers and Bagaries.				Chummins.				Grand Total.							
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	
1	45	{ Havalee Kuteoor	71	115	104	80	299	12	15	15	18	48	935	1,543	1,603	1,369	4,515	
2	37	{ Nizamabad	1	2	2	2	6	61	109	95	71	266	484	897	949	643	2,489	
3	62	Racheral .....	...	...	...	...	...	...	...	...	...	...	977	1,834	1,949	1,989	5,772
4	41	Vejaghiery Vekhal
5	31	Nunthaghare Nanel cond	16	22	23	31	76	...	...	...	...	...	535	972	995	954	2,921
6	37	Koroetta .....	...	...	...	...	...	...	...	...	...	...	635	1,018	1,106	905	3,029
7	50	Sauegurun	8	13	13	7	33	...	...	...	...	...	325	590	675	544	1,809
8	50	Thevecondah	37	47	44	44	135	37	43	46	48	137	638	910	919	808	2,637	
9	22	Polass	142	49	53	51	153	29	21	31	43	100	574	688	656	776	2,120	
10	21	Anthagery	3	4	4	4	12	...	...	...	...	...	162	237	236	218	691
11	10	Vempully	64	65	67	71	263	3	4	4	3	11	474	551	577	476	1,604	
12	12	Namapully .....	...	...	...	...	...	...	...	...	...	...	74	121	124	147	392
13	25	Kuarun	10	11	12	11	34	12	14	14	18	46	141	184	203	270	657	
14	11	Moncondor	23	35	36	33	104	...	...	...	...	...	489	875	849	830	2,554
15	51	Velthe	1	1	1	...	2	...	...	...	...	...	139	214	217	217	648
16	19	Yamulvadah	44	59	69	49	174	...	...	...	...	...	863	1,486	1,543	1,241	4,270
17	19	Velloolah	2	4	6	6	16	...	...	...	...	...	401	864	859	596	2,319
18	29	Noostl postum	4	8	10	10	28	...	...	...	...	...	276	484	546	529	1,519
		Arsekotah	21	37	29	24	90	2	4	5	2	11	308	466	450	355	1,271	
		Total	447	472	473	423	1,368	156	291	210	268	619	8,400	13,934	14,416	12,867	41,217	
	51	Jagheer Villages	10	18	20	24	62	24	27	34	40	101	1,121	1,989	2,050	1,611	5,650	
		Grand Total	457	490	493	447	1,430	180	228	244	248	720	9,521	15,923	16,466	14,478	46,867	

Number.	No. of Villages.	NAMES OF THE PURUSNAMS AND TALOOKS.	MOTURUPPA.						OIL PRESSERS.					
			Dhungars.						Cotton Cleaners.					
			Houses.	Looms.	Men.	Women.	Children.	Total.	Houses.	Bows.	Men.	Women.	Children.	Total.
1	45	{ Havalee Kutcoor..... }	107	62	159	176	169	504	42	42	58	65	69	192
2	37	{ Nizambad..... }	3	3	3	3	3	9	30	27	50	41	50	141
3	62	Bacheriah.....	67	57	106	120	122	348	50	50	75	78	99	252
4	41	Vejigheery Velchal.....												
5	31	Nanthaghere Nameleconda.....	128	26	216	222	242	680	16	16	28	27	34	89
6	37	Koroolla.....	15	13	20	16	13	49	26	25	29	33	28	90
7	50	Sanegurum.....	99	39	131	149	138	418	25	25	32	36	44	112
8	30	Thevecondah.....	15	14	15	16	20	51	18	18	22	20	24	66
9	22	Polase.....	2	2	3	3	6	12	8	8	10	13	11	34
10	21	Anthagery.....	71	8	106	110	108	323	10	10	15	15	18	48
11	10	Tempully.....	12	...	13	15	12	40	14	14	15	14	13	42
12	12	Namapully.....	27	...	38	33	37	113	6	6	7	9	9	25
13	25	Korurum.....	44	15	48	54	76	178	10	10	14	14	22	50
14	11	Moncondoor.....	131	28	211	208	202	621	27	27	37	36	46	119
15	51	Velthe.....	29	58	78	107	48	124	8	41	11	15	11	37
16	18	Yamuvadah.....	5	4	6	7	7	20	22	23	30	35	31	96
17	19	Yelloolah.....	12	12	19	24	25	68	12	12	19	19	20	58
18	29	Noetlaporum.....	23	13	26	30	23	79	10	10	11	10	13	34
		Arsekotah.....												
	51	Total.....	849	354	1,253	1,336	1,334	3,923	375	371	522	542	607	1,671
		Jagheer Villages.....	89	42	127	146	173	446	40	39	66	71	85	222
		Grand Total.....	938	396	1,380	1,482	1,507	4,369	415	410	588	613	692	1,893
									216	213	326	361	355	1,042

МОНЕТЕРЫ.

HYDERABAD AFFAIRS.

		NAMES OF THE PURGUNNAHS AND TALOOKS.					Goldsmiths.					Bangle Sellers.					Painters.				
Number.	No. of Villages.	Houses.	Fire Chuties.	Men.	Women.	Children.	Total.	Houses.	Malakum.	Men.	Women.	Children.	Total.	Houses.	Dookhans.	Men.	Women.	Children.	Total.		
1	45	40	41	85	92	70	247	4	4	6	7	7	20	..	..	..	..	..	..
2	37	26	22	42	46	44	132	5	5	6	6	4	16	1	1	2	1	1	4		
3	62	12	12	21	25	26	72	4	4	12	12	9	33	..	..	..	..	..	..
4	41	..	..	..	..	..	..	1	1	3	1	..	4	..	..	..	..	..	..
5	31	11	10	23	30	19	72	4	4	5	6	6	17	..	..	..	..	..	..
6	37	1	1	1	2	1	4	3	3	5	6	4	15	1	1	1	1	..	2		
7	50	3	8	2	3	1	6	..	..	..	..	..	..	..	..	..	..	..	..
8	30	5	5	6	4	7	17	..	..	..	..	2	4	..	..	..	..	..	..
9	22	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..
10	21	8	10	9	7	9	25	..	..	..	..	..	..	..	..	..	..	..	..
11	10	3	3	3	3	4	10	..	..	..	..	..	..	..	..	..	..	..	..
12	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	25	32	28	60	59	71	190	3	3	3	4	2	9	1	1	1	2	..	3		
14	11	12	10	13	15	28	56	1	1	2	2	2	6	1	1	2	2	2	6		
15	51	5	5	6	5	7	18	9	8	12	8	7	27	..	..	..	..	..	..
16	18	18	12	33	38	24	95	2	2	2	2	3	7	7	3	7	9	16	32		
17	19	5	5	8	8	13	29	3	2	5	6	7	18	..	..	..	..	..	..
18	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total.....		181	172	312	337	324	973	40	38	62	61	53	176	11	7	13	15	19	47		
Jagheer Villages.....		43	44	74	94	101	269	19	16	33	42	39	114	1	1	1	1	1	3		
Grand Total.....		224	216	386	431	425	1,242	59	54	95	103	92	290	12	8	14	16	20	50		

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		MOTHURPHA.																	
		Mochees.						Munmbars.						Beetle and Tobacco Sellers					
No. of Villages.		Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.
1	45 {	2	2	4	3	1	8	4	2	5	6	5	16	2	2	3	4	1	8
2	37 {	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3	3	..	6
3	62 {	..	..	..	..	..	..	..	..	..	..	..	..	2	2	4	5	2	11
4	41 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	31 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	37 {	3	..	4	4	3	11	5	..	5	5	6	16	3	3	3	4	2	9
7	50 {	..	..	..	..	..	..	6	4	6	6	7	19	..	..	..	..	..	13
8	30 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	22 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	21 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	10 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	12 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	25 {	1	1	4	5	..	9	..	..	..	..	..	..	2	2	3	4	2	9
14	11 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	51 {	..	..	..	..	..	..	..	..	..	..	..	..	2	2	3	3	3	9
16	18 {	4	4	11	15	10	36	..	..	..	..	..	..	1	1	1	1	..	2
17	19 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	29 {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		10	7	23	27	14	64	15	6	16	17	18	51	16	15	23	29	15	67
	51 {	8	8	10	16	20	46	1	..	1	3	..	4	5	4	8	9	7	24
		18	15	33	43	34	110	16	6	17	20	18	55	21	19	31	38	22	91
		Grand Total.....																	

Number.	No. of Villages.	MOTHURPETA.											
		Tailors.						Dyers.					
		Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.
1	45	27	26	46	46	29	121	6	6	11	12	8	31
2	37	8	8	10	12	11	33	1	1	4	4	8	16
3	26	18	18	33	34	37	104	13	13	21	21	17	59
4	41	7	7	14	13	15	42	4	4	11	21	10	36
5	31	19	19	28	31	25	84	...	...	...	...	...	...
6	37	13	13	21	19	20	60	...	...	...	15	...	...
7	50	9	9	13	13	15	41	...	...	...	...	...	...
8	30	1	1	2	1	2	5	...	...	...	...	...	...
9	22	2	...	4	3	1	8	...	...	...	...	...	...
10	21	8	8	10	11	5	26	...	...	...	...	...	...
11	10	1	1	...	1	...	1	...	...	...	...	...	...
12	12	3	3	3	4	5	12	...	...	...	...	...	...
13	25	15	13	32	36	28	96	...	...	...	...	...	...
14	11	5	5	9	10	7	26	...	...	...	...	...	...
15	51	21	1	19	29	44	92	5	...	9	7	5	21
16	18	15	5	20	23	19	62	10	2	14	20	9	43
17	12	4	4	5	6	10	21	1	1	1	...	...	1
18	29	2	2	3	3	1	7	...	...	...	...	...	...
Total.....		178	143	272	295	274	841	40	27	71	79	57	207
Jagheer Villages.....		58	52	131	116	93	340	25	18	48	46	52	147
Grand Total.....		236	195	403	411	367	1,181	65	45	119	125	109	354
								26	19	40	51	33	124

HYDERABAD AFFAIRS.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		MOTHURPRA.																		
		Moonoorwars.						Buljewars.						Kussars.						
Number.	No. of Villages.	Houses.	Doorkans.	Men.	Women.	Children.	Total.	Houses.	Doorkans.	Men.	Women.	Children.	Total.	Houses.	Doorkans.	Men.	Women.	Children.	Total.	
1	45	17	1	19	22	15	56	12	..	20	21	22	63	13	6	28	31	29	88	
2	37	4	..	4	4	5	13	1	..	2	1	1	4	3	2	6	8	6	20	
3	62	..	..	..	..	..	..	..	..	..	..	..	..	6	6	12	14	10	36
4	41	..	..	..	..	..	..	2	..	3	1	..	4	..	3	8	9	3	20
5	31	1	..	..	1	..	1	..	..	..	..	..	..	1	1	1	1	..	2
6	37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	50	6	..	6	8	4	18	..	..	..	..	..	..	1	1	4	2	2	8
8	30	1	1	1	2	2	5	..	..	..	..	..	..	..	..	..	..	..	..
9	22	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	3
10	21	16	..	16	15	10	41	..	..	..	..	..	..	1	1	1	..	..	1
11	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	25	35	..	54	51	36	141	16	..	32	34	12	78	..	..	..	..	..	..
14	11	3	..	3	3	2	8	..	..	..	..	..	..	1	1	..	1	1	3
15	51	17	..	37	39	30	106	10	..	15	18	15	48	1	1	1	1	1	3	
16	18	..	..	..	..	..	..	2	1	4	5	1	10	6	1	7	9	7	23
17	19	..	..	..	..	..	..	5	4	6	7	6	19	18	10	20	16	17	53
18	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total.....		100	2	140	145	104	389	48	5	82	87	57	226	55	33	89	92	76	257	
Jagheer Villages.....		3	1	4	4	7	15	15	7	27	30	30	93	13	10	22	25	22	69	
Grand Total.....		103	3	144	149	111	404	63	12	109	117	87	319	68	43	111	117	98	326	

MOTHURPA.

HYDERABAD AFFAIRS.

Number.	No. of Villages.	Tin Makers.						Musicians.						Scent Makers.					
		Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.
1	45	...	...	...	...	...	...	...	...	...	...	...	...	2	1	2	3	3	8
2	37	3	...	4	4	2	10	1	...	...	1	...	2	1	...	2	1	1	4
3	62	1	...	1	1	2	4	...	...	...	...	...	...	7	6	11	11	11	33
4	41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	31	1	...	1	2	1	4	7	...	8	9	6	23	4	4	5	8	6	19
6	37	2	...	3	2	2	7	1	...	1	1	1	3	1	1	2	1	...	3
7	50	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
8	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	22	71	67	100	106	109	315	...	...	...	...	...	...	...	...	...	...	...	...
10	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	12	...	...	...	...	...	...	1	...	2	2	2	6	1	1	1	3	...	4
13	25	...	...	...	...	...	...	3	...	8	8	3	19	...	...	...	...	...	...
14	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	51	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	18	25	...	26	28	22	76	2	...	5	5	1	11	7	3	14	13	5	32
17	19	1	...	...	2	1	3	1	...	1	1	1	3	1	1	4	4	2	10
18	29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total		104	67	135	145	139	419	17	...	27	28	15	70	25	18	43	47	31	121
Jagheer Villages		2	2	4	4	3	11	16	...	28	29	37	94	6	6	17	14	15	46
Grand Total		106	69	139	149	142	430	33	...	55	57	52	164	31	24	60	61	46	167

Number.	No. of Villages.	NAMES OF THE PERGUNNAS AND TALOOKS.	MOTHUPURA.						TODDY SELLERS.					
			Bamboo Sellers.						Shepherds.					
			Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.
			Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.
1	45	Havalee Kintoor	10	10	14	14	11	39	115	...	148	161	138	447
2	37	Nizamabad	7	7	8	12	8	28	99	...	151	149	117	417
3	62	Bacherlah	13	13	20	24	26	70	211	...	390	355	377	1,122
4	41	Vejlagheri Velchal	4	4	6	5	3	14	...	...	87	86	...	...
5	31	Nunthagheri Kameleconda	8	8	12	13	9	34	63	...	42	41	69	242
6	37	Koroolla	6	6	8	9	11	28	25	...	152	147	227	116
7	50	Saugurum	7	7	10	11	9	30	80	21	85	87	83	255
8	30	Therecondah	4	4	4	4	6	14	...	...	...	...	...	...
9	52	Polass	2	2	2	2	1	5	...	...	...	...	...	...
10	21	Anthagery	2	2	2	2	4	8	...	...	...	...	...	...
11	10	Vempully	1	1	1	...	2	3	...	...	...	...	...	...
12	12	Namapully .....	...	...	...	...	...	...	...	...	...	...	...	...
13	25	Koaram .....	...	...	...	...	...	...	...	...	...	...	...	...
14	11	Monendoor .....	...	...	...	...	...	...	...	...	...	...	...	...
15	51	Velbe	12	1	16	17	17	50	123	...	159	170	142	481
16	18	Yamulvach	27	...	46	48	40	134	55	...	80	75	55	210
17	19	Velloodah	5	...	6	6	10	22	94	...	104	120	138	362
18	29	Noostlapurum .....	...	...	...	...	...	...	16	...	20	16	17	53
19	...	Arsaketah .....	...	...	...	...	...	...	...	...	...	...	...	...
Total			108	63	155	167	157	479	881	21	1,276	1,260	1,169	3,705
Jagher Villages			26	25	35	36	42	113	165	...	193	197	163	553
Grand Total			134	88	190	203	199	592	986	21	1,469	1,457	1,332	4,258
											1,677	1,405	2,714	2,851
												2,744		8,309

MATHURPRA.

HYDERABAD AFFAIRS.

Number		No. of Villages.	Attack Sellers.						Hide Sellers.						Butchers.					
			Attack Sellers.					Hide Sellers.					Butchers.							
			Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Men.	Women.	Children.	Total.
1	45	{ Havalee Kutdoor Nizamabad Racheriah Vejlaghery Vetchal Nunthaghery Namelecondah Korochla Sanegurum Thevecondah Polass Anthagery Vempully Namapully Koarun Monecondoor Velthe Yamulivadah Velloolah Noostlapoorum Areakotah Total Jagheer Villages..... Grand Total.....	7	7	11	12	8	31	5	...	6	5	5	16	3	3	4	5	7	16
2	37		2	2	3	2	1	6
3	62		2	2	2	2	3	7
4	41	
5	31	
6	37		1	1	...	1	...	1	68	104	76	85	93	254	1	1	1	1	13	55
7	50		1	1	2	2	1	5	32	1	33	33	32	98	1	1	1	2	1	5
8	30	
9	22	
10	21		5	5	8	5	8	21
11	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	25	2	2	3	3	1	7	...	...	...	...	...	...	1	1	2	3	4	9
14	11	...	...	...	...	...	...	...	...	...	...	...	...	3	1	3	3	4	10
15	51	25	21	36	40	35	111	...	...	...	...	...	...	1	...	1	1	...	2
16	18	...	...	...	...	...	...	21	12	27	26	28	81	1	1	3	4	1	8
17	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	29	6	6	5	7	6	18	11	...	17	17	13	47	...	...	...	...	...	...
		51	47	70	74	63	207	137	117	159	166	171	496	21	18	37	42	34	113	
		13	12	18	29	21	68	65	4	94	90	79	263	14	14	26	36	34	96	
		64	59	88	103	84	275	202	121	253	256	250	759	35	32	63	78	68	209	

GRAND TOTAL OF MOTHURPFA.

KOOSBASH OR UNEMPLOYED
PEOPLE OF THE VILLAGES.

Brahmins.

Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	GRAND TOTAL OF MOTHURPFA.													KOOSBASH OR UNEMPLOYED PEOPLE OF THE VILLAGES.				
			Houses.	Dookans.	Looms.	Malarum.	Fire Chutties.	Bows.	Mills.	Butties.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	
1	45	{ Havalee Kutcoor..... Nizamabad..... Rocherlah..... Vejiagberry Velchal..... Nunthaghery Nameleconda	1,196 549 225 1,214	415 925 520	358 118 389	4 5 4	41 22 12	42 27 50	25 7 22	.. ... ...	1,882 848 2,046	1,978 857 2,099	1,797 710 2,255	5,657 2,415 6,400	59 67 106	89 105 166	109 101 192	61 42 144	259 248 502
2	37	Nunthaghery Nameleconda	496	199	198	1	..	16	11	...	797	833	949	2,579	15	21	18	13	52	
3	62	Korocolla	659	125	256	4	10	25	17	...	1,059	1,132	905	3,116	18	19	20	10	49	
4	41	Sanegurum	626	348	217	3	1	25	7	...	902	968	949	2,819	13	16	89	15	60	
5	31	Thevecondah.....	430	137	152	...	8	18	20	...	589	574	574	1,737	1	1	...	...	1
6	30	Folass.....	98	26	53	...	5	8	6	...	129	142	191	462	1	1	...	...	1
7	22	Anthagery.....	241	94	69	1	...	10	2	...	346	363	351	1,060	4	6	5	1	12	
8	50	Vempully.....	163	37	69	...	10	14	8	...	187	187	153	527	2	2	1	2	5	
9	30	Namapully	119	43	48	...	3	6	1	...	162	180	186	528	3	4	2	2	8	
10	21	Koartum.....	174	66	70	...	...	10	2	...	204	220	300	724	3	3	5	2	12
11	12	Moncondoor	639	220	183	3	28	27	11	...	1,080	1,099	1,037	3,216	58	106	89	78	273	
12	25	Velthe	167	58	45	1	10	7	6	...	223	236	243	708	8	15	15	4	34	
13	11	Yannulvadah.....	788	131	337	8	5	41	25	...	1,162	1,270	1,044	3,476	32	39	47	43	129	
14	51	Velloolash	639	65	269	2	12	23	9	...	998	1,101	857	2,956	21	33	37	22	92	
15	18	Nooslapoorum.....	388	83	89	2	5	12	5	...	526	574	693	1,793	2	4	2	1	7	
16	19	Arsekotah.....	202	67	70	...	...	10	8	...	272	268	254	794	...	...	...	...	...
17	29	Total.....	8,788	2,859	2,990	38	172	371	192	...	13,418	14,101	13,448	40,967	413	632	662	440	1,734	
18	51	Jagheer Villages ...	1,418	479	477	16	44	39	21	...	2,872	3,000	2,617	8,489	706	1,091	1,156	890	3,137	
19		Grand Total.....	10,206	3,338	3,467	54	216	410	213	...	16,290	17,101	16,065	49,456	1,119	1,723	1,818	1,330	4,871	

KOOSHBASH.																	
Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	Koonbees.					Telingas.					Musulmen.				
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	{ Havalee Kutcoor	18	25	95	22	72	51	65	67	66	198	49	64	57	45	166
2	37	{ Nizamabad	61	85	83	54	222	...	...	...	...	...	75	114	115	94	323
3	42	{ Racherlah	51	82	90	86	258	231	320	327	329	976	64	105	105	117	327
4	41	{ Vejjagberry Velchal	6	9	10	12	31	50	64	72	51	187	3	6	5	3	14
5	31	{ Nanthaghere Nameleconda	1	1	1	2	4	...	...	...	...	...	97	163	203	133	459
6	37	{ Keroella	96	126	134	173	533	...	...	...	...	...	34	57	47	37	141
7	50	{ Sanegurum	36	39	40	45	124	...	...	...	...	...	11	13	11	9	33
8	30	{ Therecondah	5	7	7	8	22	...	...	...	...	...	11	17	25	18	60
9	22	{ Polass	8	9	8	9	26	...	...	...	...	...	12	18	16	2	36
10	21	{ Anthagery	1	1	1	3	5	67	71	81	67	219	8	...	...	...	...
11	10	{ Vempully .....	...	...	...	...	...	25	35	31	36	101	...	14	14	5	33
12	12	{ Namapully .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	25	{ Korum	7	9	9	8	26	10	13	14	15	42	95	185	147	173	505
14	11	{ Moncondoor	1	1	1	...	2	28	36	36	38	110	33	65	104	55	224
15	51	{ Vellhe	3	7	6	2	15	...	...	...	...	...	11	14	19	11	44
16	18	{ Yamulvadah .....	...	...	...	...	...	51	77	68	60	205	41	79	78	57	214
17	19	{ Velloolah .....	...	...	...	...	...	34	38	40	56	134	32	38	38	55	131
18	29	{ Neostlapoorum .....	...	...	...	...	...	31	44	41	38	123	...	...	...	...	...
19		{ Arekotal .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	51	Total.....	294	401	415	424	1,240	578	763	777	755	2,295	581	952	984	814	2,750
		Jagheer Villages	154	190	240	175	605	30	32	44	68	144	405	560	699	95	1,354
		Grand Total	448	591	655	599	1,845	608	795	821	823	2,439	986	1,512	1,683	909	4,104

KOOSHBASH.

719

HYDERABAD AFFAIRS.

KOOSHABASH.																
No. of Villages.		Jungums.					Total.					Zemindars.				
		Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	27	47	49	41	137	52	82	88	65	236	...	...	...	...	...
2	37	23	29	31	27	87	36	50	57	49	156	131	177	185	132	494
3	62	39	71	62	68	201	69	112	111	122	345	...	...	...	...	...
4	41	21	34	37	28	99	27	45	48	44	137	...	...	...	...	...
5	31	21	27	35	36	98	58	74	82	88	244	...	...	...	...	...
6	37	26	29	35	29	93	38	46	55	54	155	...	...	...	...	...
7	50	9	9	9	11	29	18	20	19	18	57	31	40	42	33	115
8	30	5	6	8	2	16	6	7	9	6	22	...	...	...	...	...
9	22	9	10	14	13	37	15	23	25	20	68	...	...	...	...	...
10	21	7	6	9	5	20	20	19	23	12	54	8	9	5	5	19
11	10	17	25	21	34	80	17	25	21	34	80	19	18	19	19	56
12	12	2	3	3	2	8	5	8	5	9	22	...	...	...	...	...
13	25	17	34	32	32	98	39	64	63	51	178	...	...	...	...	...
14	11	3	5	6	4	15	15	20	21	18	59	...	...	...	...	...
15	51	46	62	66	46	174	67	91	100	69	260	182	232	218	203	653
16	18	31	41	43	17	101	49	69	71	32	172	...	...	...	...	...
17	19	1	2	3	2	7	6	9	12	10	31	...	...	...	...	...
18	29	6	7	8	9	24	6	7	8	9	24	...	...	...	...	...
Total		310	447	471	406	1,324	543	771	818	711	2,300	371	476	469	392	1,337
Jagheer Villages		84	129	148	92	369	109	164	184	124	472	98	163	154	95	412
Grand Total		394	576	619	498	1,693	652	935	1,002	835	2,772	469	639	623	487	1,749

KOOSHABASH.									
Village peons.					Elmas.			Dhers.	
Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.					Houses.	Men.	Women.
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.
1	45	{ Havalee Kuteoor.....	72	100	108	71	279	...	...
2	37	{ Nizambad.....	...	...	...	...	...	...	...
3	62	{ Hacheral.....	...	...	...	...	...	...	...
4	41	{ Vejiagery Velchal.....	...	...	...	...	...	...	...
5	31	{ Nantaghare Nanneleconda	116	165	172	177	514	4	9
6	37	{ Korocilla	163	200	220	197	617	4	8
7	50	{ Sanegurum	32	23	38	33	94	1	2
8	30	{ Thevecondah .....	...	...	...	...	...	...	...
9	22	{ Polass .....	...	...	...	...	...	...	...
10	21	{ Anthegery .....	...	...	...	...	...	...	...
11	10	{ Vempully.....	10	10	9	5	24	...	...
12	12	{ Namapully .....	...	0	...	...	108	...	...
13	25	{ Koarum.....	25	30	31	47	...	...	...
14	11	{ Moncondoc.....	23	39	26	28	93	1	1
15	51	{ Velhe	3	1	3	2	6	...	...
16	18	{ Yamul adal.....	14	16	17	8	41	18	18
17	19	{ Velloolah	139	172	204	182	558	...	...
18	29	{ Nooslapoorum	10	11	13	14	38	13	21
19	29	{ Arsekutah	3	6	3	1	10	43	70
20	51	{ Total	610	773	844	765	2,382	88	134
21	51	{ Jagher Villages .....	...	...	...	...	...	4	6
22	51	{ Grand Total	610	773	844	765	2,382	92	140
23	51		...	...	...	...	...	143	132
24	51		...	...	...	...	...	415	415
25	51		...	...	...	...	...	364	497
26	51		...	...	...	...	...	475	475
27	51		...	...	...	...	...	455	455
28	51		...	...	...	...	...	1,427	1,427
29	51		...	...	...	...	...	...	...
30	51		...	...	...	...	...	...	...
31	51		...	...	...	...	...	...	...
32	51		...	...	...	...	...	...	...
33	51		...	...	...	...	...	...	...
34	51		...	...	...	...	...	...	...
35	51		...	...	...	...	...	...	...
36	51		...	...	...	...	...	...	...
37	51		...	...	...	...	...	...	...
38	51		...	...	...	...	...	...	...
39	51		...	...	...	...	...	...	...
40	51		...	...	...	...	...	...	...
41	51		...	...	...	...	...	...	...
42	51		...	...	...	...	...	...	...
43	51		...	...	...	...	...	...	...
44	51		...	...	...	...	...	...	...
45	51		...	...	...	...	...	...	...

HYDERABAD AFFAIRS.

		KOOSHBASH GRAND TOTAL.						GRAND TOTAL OF MOTHURPA AND KOOSHBASH.													
Number.	No. of Villages	NAMES OF THE PURGUNNAHS AND TALOOKS.				KOOSHBASH GRAND TOTAL.			GRAND TOTAL OF MOTHURPA AND KOOSHBASH.												
		Houses.	Schools.	Men.	Women.	Children.	Total.	Houses.	Dookans.	Looms.	Malarum.	Five Chuttees.	Bows.	Mills.	Schools.	Butties.	Men.	Women.	Children.	Total.	
1	45	{ Haralee Kutcoor ... }	366	5	511	555	393	1,459	1,562	415	358	4	41	42	25	5	...	2,393	2,533	2,190	7,116
2	37	{ Nizamabad ... }	462	1	643	670	489	1,802	1,701	225	118	5	22	27	7	1	...	1,491	1,527	1,199	4,217
3	62	Racheriah ...	601	...	894	936	946	2,776	1,815	520	389	4	12	50	22	...	2,940	3,035	3,201	9,176	
4	41	Vejiaghery Velchal ...	376	...	533	557	532	1,622	872	199	198	1	...	16	11	...	1,330	1,390	1,481	4,201	
5	31	Nunthaghery Nam-leconda	464	2	609	707	597	1,913	1,123	125	256	4	10	25	17	2	...	1,668	1,859	1,502	5,029
6	37	Kerootla ...	261	5	331	356	399	1,086	887	348	217	3	1	25	7	5	...	1,233	1,324	1,348	3,905
7	50	Sanegurum ...	172	...	212	207	170	589	602	137	152	...	8	18	20	...	801	781	744	2,326	
8	30	Thevecondah ...	38	...	42	56	47	145	136	26	53	...	5	8	6	...	171	198	238	607	
9	22	Polass ...	138	1	178	177	137	492	379	94	69	1	...	10	2	1	...	524	540	488	1,552
10	21	Anthagery ...	165	1	171	179	141	491	328	37	69	...	10	14	8	1	...	358	366	294	1,018
11	10	Vempully ...	73	...	99	91	97	287	192	43	48	...	3	6	1	...	261	271	283	815	
12	12	N-mapully ...	33	...	43	41	58	142	207	66	70	...	...	10	2	...	247	261	358	866	
13	25	Koaram ...	415	4	685	622	608	1,915	1,054	220	183	3	28	27	11	4	...	1,765	1,721	1,645	5,131
14	11	Moncondoor ...	127	2	185	230	166	581	294	58	45	1	10	7	6	2	...	414	466	409	1,289
15	51	Velthe ...	408	1	520	531	469	1,520	1,196	131	337	8	5	41	25	1	...	1,682	1,801	1,513	4,996
16	18	Yannulvadah ...	639	4	855	934	759	2,548	1,278	65	269	2	12	23	9	4	...	1,853	2,035	1,616	5,504
17	19	Velloolah ...	130	...	175	180	205	560	518	83	89	2	5	12	5	...	701	754	898	2,353	
18	29	Novatlapoorum ...	125	...	167	162	129	458	327	67	70	...	...	10	8	...	439	430	383	1,252	
		Arsekojah ...																			
		Total	4,993	26	6,853	7,191	6,342	20,386	13,781	2,859	2,990	38	172	371	192	26	...	20,271	21,292	19,790	61,353
51		Jagheer Villages...	1,726	13	2,550	2,853	1,931	7,334	3,244	479	477	16	44	39	21	13	...	5,422	5,853	4,548	15,823
		Grand Total	6,719	39	9,403	10,044	8,273	27,720	17,025	3,338	3,467	54	216	410	213	39	...	25,693	27,145	24,338	77,176

PHYSICAL FEATURES AND NATURAL PHENOMENA.

GRAND TOTAL OF MOTHERPURA, MEFRASDARS, CULTIVATORS AND KOOSHBASH.														
No. of Villages.	NAMES OF THE PURGUNNAHS AND TALUOKS.												Total.	
Number.	Houses.	Doekans.	Looms.	Malarum.	Fire Chuttees.	Flows.	Mills.	Schools.	Men.	Women.	Children.			
1	45	{ Havalee Kutcoor	3,669	415	358	4	41	42	25	5	5,765	6,082	5,295	17,142
2	37	{ Nivambad	2,355	225	118	5	22	27	7	1	3,765	3,888	2,880	10,533
3	62	{ Racherlah	3,713	520	389	4	12	50	22	...	6,329	6,643	6,960	19,932
4	41	{ Vejiaghery Velcha	1,849	199	198	1	...	16	11	...	3,066	3,170	3,277	9,513
5	31	{ Nurnthaghere Naveleconda	2,239	125	256	4	10	25	17	...	3,431	3,757	3,111	10,299
6	37	{ Korootla	1,674	348	217	3	1	25	7	5	2,561	2,784	2,701	8,046
7	50	{ Saneegurum	1,753	137	152	...	8	18	20	...	2,500	2,481	2,252	7,233
8	30	{ Thevecondah	1,043	26	53	...	5	8	6	...	1,339	1,385	1,592	4,316
9	22	{ Polass	794	94	69	1	...	10	2	1	1,107	1,111	1,047	3,265
10	21	{ Anthegery	1,054	37	69	...	10	14	8	1	1,204	1,249	1,111	3,564
11	10	{ Vempully	408	43	48	...	3	6	1	...	586	605	681	1,872
12	12	{ Koarum	507	66	70	...	...	10	2	...	648	689	942	2,289
13	25	{ Moncondoor	2,055	220	183	3	28	27	11	4	3,519	3,476	3,307	10,302
14	11	{ Veltie	623	58	45	1	10	7	6	2	914	974	925	2,813
15	51	{ Yamul'adah	3,186	131	331	8	5	41	25	1	4,937	5,104	4,168	14,209
16	18	{ Velloolah	2,054	65	269	2	12	23	9	4	3,319	3,476	2,647	9,442
17	19	{ Noostlapoorum	1,136	83	89	2	5	12	5	...	1,760	1,811	2,021	5,592
18	29	{ Arsekotah	856	67	70	...	...	10	8	...	1,217	1,204	1,064	3,485
		Total	30,968	2,859	2,990	38	172	371	192	26	47,967	49,899	45,981	1,43,847
	51	Jagheer Villages	6,329	619	818	24	50	81	47	13	10,875	11,476	9,063	31,420
		Grand Total	37,297	3,478	3,808	62	222	452	239	39	58,842	61,375	55,050	1,75,267

HYDERABAD AFFAIRS.

LAND REVENUE.									
Number.	No. of Villages.	Paddy.				Jowaree.			
		No. of Fields.	Quantity sown.	Quantity produced.	Amount.	No. of Fields.	Quantity sown.	Quantity produced.	Amount.
		Cds. Mds. Srs.	Cds. Mds. Srs.	Cds. Mds. Srs.	Rs. a. p.	Cds. Mds. Srs.	Cds. Mds. Srs.	Rs. a. p.	
1	45	2,680½	319 6 22	2,048 6 0	20,491 5 0	1,242½	10 16 29	351 7 20	3,059 2 0
2	37	1,370	172 14 37	1,574 3 13	20,628 11 0	125	1 9 38	26 14 4	402 4 0
3	62	3,869	369 8 0	1,893 10 0	18,937 8 0	4,453	56 10 25	626 0 0	6,357 4 0
4	41	1,043	78 1 26	389 10 10	5,629 1 9	.....	.....	161 0 0	2,575 8 9
5	31	1,622	92 19 31	1,075 5 0	8,442 5 0	.....	.....	55 7 3	887 5 0
6	37	1,275	127 10 0	809 0 0	8,477 0 0	15	0 3 30	3 15 0	2,060 0 0
7	50	127	8 18 0	83 0 0	1,661 0 0	223	8 10 0	145 10 0	4,636 0 0
8	30	362	21 10 18	229 10 8	4,570 8 0	129	1 11 36	32 1 8	1,067 0 0
9	22	259	23 1 20	198 10 0	4,570 8 0	.....	.....	32 6 7	515 0 0
10	21	792	48 4 20	297 5 1	4,761 6 0	189½	3 11 4	56 15 0	1,134 12 0
11	10	369½	36 19 0	436 5 0	2,566 4 0	53	0 11 38	20 10 0	294 0 0
12	12	218	21 17 6	258 9 7	1,856 11 3	.....	.....	31 18 30	511 10 3
13	25	1,580	129 12 0	779 13 32	13,480 7 0	795	3 12 16	143 3 33	2,961 8 0
14	11	408	33 7 0	188 1 0	3,352 0 0	89½	0 9 35	16 1 20	350 0 0
15	51	1,768½	141 8 0	1,396 2 11	15,289 0 0	1,141½	11 17 21	252 2 29	2,906 7 9
16	18	1,569½	83 13 27	604 12 1	10,148 0 9	1,270½	8 4 6	102 8 26	2,048 11 5
17	19	1,188	98 15 38	370 18 32	5,685 0 0	363	8 17 36	36 9 36	724 0 0
18	29	210½	9 14 25	53 15 12	1,163 11 2	253	6 18 20	63 11 0	1,093 1 1
Total.....		20,711½	1,817 2 30	13,685 17 7	1,49,664 7 5	10,341½	117 6 14	2,157 2 16	33,583 10 3
Jagheer Villages.....		3,143	191 11 5½	1,256 7 20	18,219 6 3	1,051½	13 3 12½	149 17 11½	3,660 2 0
Grand Total....		23,854½	2,008 13 35½	14,942 4 27	1,67,883 13 8	11,393½	130 9 26½	2,306 19 27½	37,243 12 3

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		LAND REVENUE.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		KURGONER.			SAMAH.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
NAMES OF THE PURGUNNAHS AND TALOOKS.		No. of Fields.	Quantity sown.	Quantity produced.	Amount.	No. of Fields.	Quantity sown.	Quantity produced.	Amount.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
No. of Villages.	Number.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
1	45	{	Havalee Kutoor	17	0 2 19	Cds. Mds. Srs.	1 9 0	Rs. a. p.	13 4 0	578½	Cds. Mds. Srs.	14 10 17	Quantity produced.	Rs. a. p.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

HYDERABAD AFFAIRS.

Number.		No. of Villages.	INDIAN CORN.										WHEAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
			Quantity sown.					Quantity produced.					Amount.					Quantity produced.					Amount.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
			No. of Fields.					Candies.					Mauuds.					Seers.					Rupces.					Annas.					Pies.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
			Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.	Candies.	Mauuds.	Seers.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1	45	{	199½	1	14	15	39	3	22	346	14	0	23½	0	3	39	1	17	20	66	3	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		LAND REVENUE.																	
		CHENNAH.										MUSSOOR.							
Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.		No. of Fields.	Quantity Sown.		Quantity Produced.		Amount.		
				Candies.	Mauds.	Seers.	Candies.	Mauds.	Seers.	Rupces.	Annas.		Pies.	Candies.	Mauds.	Seers.	Rupces.	Annas.	Pies.
1	45	Havalee Kutcoor.....	97	1	15	18	14	19	0	292	8	0	.....	..	0	..	..	..	..
2	37	Nizambad.....	22	0	19	37	4	15	0	84	4	0	18	..	12	19	4	37	7
3	62	Racheriah.....	79	2	12	20	12	17	8	210	8	0	.....	..	..	..	..	..	..
4	41	Vejaghery Velchal.....		..	..	..	..	..	..	.....	..	..	.....	..	..	..	..	..	..
5	31	Nanthaghere Nameleconda.....	.....	..	..	..	29	0	0	434	7	0	.....	..	..	..	..	..	..
6	37	Koroodla.....	.....	..	..	..	10	0	0	150	0	0	.....	..	..	..	..	..	..
7	50	Sauegurum.....	.....	..	..	..	..	..	..	.....	..	..	.....	..	..	..	..	..	..
8	30	Thevecondah.....	14	0	9	5	4	7	0	174	0	0	.....	..	..	..	..	..	..
9	22	Polass.....	.....	..	..	..	..	7	0	20	0	0	.....	..	..	..	..	..	..
10	21	Anthagery.....	.....	..	..	..	1	..	..	.....	..	..	.....	..	..	..	..	..	..
11	10	Vempully.....	.....	..	..	..	..	..	..	.....	..	..	.....	..	..	..	..	..	..
12	12	Nanapulley.....	29	0	15	8	12	5	0	147	0	0	.....	..	..	..	..	..	..
13	25	Koaram.....	.....	..	..	..	9	12	30	144	9	0	.....	..	..	..	..	..	..
14	11	Moncondoor.....	118	0	14	23	4	15	20	275	0	0	.....	..	..	..	..	..	..
15	51	Velthe.....	206	2	19	36	26	17	0	497	14	9	.....	..	..	..	..	..	..
16	18	Yamulvadah.....	.....	..	..	..	..	..	..	.....	..	..	.....	..	..	..	..	..	..
17	19	Velloolah.....	294	0	8	24	1	16	36	465	8	5	.....	..	..	..	..	..	..
18	29	Noostlapoorum.....	.....	..	..	..	..	..	..	.....	..	..	.....	..	..	..	..	..	..
		Areekotah.....	.....	..	..	..	..	..	..	.....	..	..	.....	..	..	..	..	..	..
		Total.....	594½	10	15	11	142	12	14	2,895	11	2	18	0	5	12	2	19	4
	51	Jagheer Villages.....	63½	2	1	33	9	13	0	327	12	0	1	0	0	10	0	5	0
		Grand Total.....	657½	12	17	4	152	5	14	3,223	7	2	19	0	5	22	3	4	4

HYDERABAD AFFAIRS.

LAND REVENUE.																							
Number.	No. of Villages.	MOONOH.						THEOB.															
		No. of Fields.	Quantity Sown.			Quantity Produced.		Amount.	No. of Fields.	Quantity Sown.			Quantity Produced.		Amount.								
			Candies.	Mauds.	Seers.	Candies.	Mauds.			Seers.	Candies.	Mauds.	Seers.										
														Rupces.		Annas.	Pies.						
1	45	149½ 71 130	1	4	21	19	1	5	261	0	0	0	179½	1	14	10	16	11	0	231	0	0	
2	37		0	19	3	10	1	8	168	6	0	0
3	62		2	11	0	19	8	30	382	8	0	0	371
4	41
5	31
6	37	10	0	2	0	0	0	0	270	0	0	0
7	50	19	0	9	6	5	14	0	182	6	2	2	13	0	7	25	7	5	0	145	0	0	
8	30	27	0	2	37	2	2	18	53	9	8	4	...	...	...	...	...	...	...	...	...	...
9	22	...	...	...	...	...	...	...	90	0	0	0	...	...	...	...	...	...	...	...	...	...
10	21	18	0	3	32	0	19	34	40	14	0	16	...	...	...	...	...	...	...	...	...	...
11	10	8	0	2	8	2	0	0	24	0	0	20	...	...	...	...	...	...	...	...	...	...
12	12	...	...	...	...	...	...	...	80	7	0	...	...	...	...	...	...	...	...	...	...	...
13	25	105½	0	10	8	3	12	4	219	8	0	245½	...	...	...	...	...	...	...	...	...	...
14	11	22½	0	4	32	1	0	0	27	0	0	...	...	...	...	...	...	...	...	...	...	...
15	51	314½	3	12	17	42	17	32	647	12	8	21	...	...	...	...	...	...	...	...	...	...
16	18	70½	0	16	5	6	4	23	73	8	3	...	...	...	...	...	...	...	...	...	...	...
17	19	22	0	4	14	1	6	0	48	0	0	...	...	...	...	...	...	...	...	...	...	...
18	29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total		967½	11	2	23	134	10	21	2,945	2	6	870	16	0	2	2	125	13	25	1,783	15	4	
Jagheer Villages		100	0	13	32	5	6	6	184	4	0	15	0	3	36	1	7	25	25	22	0	0	
Grand Total ...		1,067½	11	16	15	139	16	27	3,129	6	6	885	16	3	38	127	1	10	10	2,005	15	4	

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		LAND REVENUE.																						
Number.		No. of Villages.	RAGOR.										GRAM.											
			No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.			No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.				
				Candies.	Mounds.	Seers.	Candies.	Mounds.	Seers.	Rupces.	Annas.	Pies.		Candies.	Mounds.	Seers.	Candies.	Mounds.	Seers.	Rupces.	Annas.	Pies.		
1	45	{	25	0	7	8	4	14	12	47	0	0	4	0	1	0	0	0	12	0	8	12	0	0
2	37		411	0	10	37	10	6	23	132	6	0	9	0	5	12	1	8	4	17	3	0	0	
3	62		...	...	...	...	...	...	...	...	...	...	2	0	1	0	0	20	1	1	0	0	0	
4	41	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	85	14	0	0
5	31		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	583	10	0	0
6	37		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	50	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	30		3	0	0	7	0	4	0	3	8	0	...	...	...	...	...	...	...	...	...	...	...	...
9	22		...	...	...	...	...	1	10	18	0	0	...	...	...	...	...	...	...	...	...	...	...	...
10	21	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	10		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	12		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	25	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	11		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	51		240	3	3	21	40	2	20	406	15	0	...	...	...	...	...	...	...	...	...	...	...	...
16	18	{	34	0	0	34	0	6	36	5	4	0	254	3	3	12	15	18	0	240	12	0	0	
17	19		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	29		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			313	4	2	27	57	4	11	613	1	0	271	3	11	24	65	1	14	1,009	11	0	0	
			64	0	2	6	0	11	10	8	2	0	184	0	12	394	1	19	11	12	0	0	0	
			3194	4	4	33	57	15	21	621	3	0	2894	4	4	234	67	0	25	1,021	11	0	0	

HYDERABAD AFFAIRS.

		LAND REVENUE.																						
		COTTON.						HEMP.																
Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.			No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.				
				Candies.	Maulds.	Seers.	Candies.	Maulds.	Seers.	Rupces.	Annas.	Pies.		Candies.	Maulds.	Seers.	Rupces.	Annas.	Pies.					
1	45	Havalee Kutcoor	251½	11	6	10	43	15	37		541	3	0	0	5	0	0	0	0	6	4	0		
2	37	Nizambad	16	2	0	39	4	10	0		34	6	0	0	2	0	0	0	0	5	0	0		
3	62	Racherlah	605	36	0	20	99	15	20		997	8	0	0										
4	41	Vejjaghery Velchal					21	12	0		239	4	9	0										
5	41	Nunthagbere Nameleconda					52	15	0		633	9	0	0										
6	37	Koreotla					1	0	0		206	0	0	0										
7	50	Sauegurum	8	1	12	0																		
8	30	Thevecondah	30	0	15	30	17	5	0		276	0	0	0	2	0	1	30	2	0	0	0		
9	22	Polass	17	0	2	36	2	9	6		40	6	0	0										
10	21	Anthagery					9	18	0		118	0	0	0										
11	10	Vempully	177	4	18	34	42	2	10		566	8	0	0	34	1	15	0	22	10	0	0		
12	12	Namapully	16	1	12	0	8	12	20		43	4	0	0										
13	25	Koaram					22	10	30		271	6	0	0					0	10	0	0		
14	11	Moncondoor	178	3	12	13	29	13	37		328	4	0	0										
15	51	Velthe	32	1	16	8	5	7	0		49	0	0	0										
16	18	Yamulvadah	243½	21	18	37	71	0	24		458	6	6	6	33½	2	13	20	10	18	0	0		
17	19	Velloolab	429	21	0	0	61	3	14		672	2	7	0										
18	29	Noostlaporum	64	5	12	0	9	5	0		75	4	0	0										
19	29	Arsakotah																						
Total			2,066½	112	8	27	502	15	38		5,570	7	10	10	76½	5	1	10	43	5	0	433	4	0
Jagheer Villages.....			140½	5	14	15	28	18	3		381	6	0	0										
Grand Total.....			2,207½	113	3	2	531	14	1		5,951	13	10	10	76½	5	1	10	43	5	0	433	4	0

PHYSICAL FEATURES AND NATURAL PHENOMENA.

		LAND REVENUE.										TOTAL OF THE GARDEN STUFFS.										
		TOTAL.																				
Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.			No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.		
				Candies.	Mauds.	Seers.	Candies.	Mauds.	Seers.	Rupces.	Annas.	Pies.		Candies.	Mauds.	Seers.	Candies.	Mauds.	Seers.	Rupces.	Annas.	Pies.
1	45	{ Havalee Kutcoor Nizambad..... Racherlah..... Vejiaghery Velchal.....	5,451½	363	8	8	2,651	11	32	8	0	59½	4	4	12	37	16	6	451	13	0	
2	37		1,934½	185	4	0	1,700	1	6	14	0	13½	2	1	11	39	6	22	224	1	0	
3	62		11,261½	497	9	25½	2,940	0	38	15	0	48½	0	0	27½	26	15	0	376	12	0	
4	41	Nunthaghery Namelcondra Korootla Saneagurum	1,043	78	1	26	613	4	35	15	9	...	...	...	...	4	4	0	67	15	0
5	31		1,622	92	19	31	1,374	14	9	11	0	...	...	...	...	31	6	0	374	15	0
6	37		1,318	129	12	30	864	4	0	0	0	65	...	...	...	33	10	0	400	0	0
7	50	Thevecondrah Polass Anthagery	626	22	11	27	340	1	0	6	2	11	0	1	28	11	1	0	93	0	0	
8	30		906	25	12	27	303	15	20	1	8	54	0	0	31½	10	7	2	213	14	0	
9	22		259	23	1	20	272	11	15	8	0	...	...	...	...	30	2	0	326	0	0
10	21	Vempully..... Namapully Korum.....	1,502½	61	10	6	463	4	31	13	0	47½	0	1	37	38	6	26	472	5	0	
11	10		6,92½	44	8	30	544	1	20	0	0	5	0	0	14	12	0	0	58	0	0	
12	12		218	21	17	6	355	3	17	7	2	...	...	...	...	15	0	20	180	3	0
13	25	Moncondoor..... Veithe Yanulvadah	3,370	141	14	36	994	5	35	3	0	23	0	6	15	46	15	32	369	4	0	
14	11		614½	36	12	8	220	7	1	8	0	12½	0	0	32	12	0	20	105	6	0	
15	51		4,572	195	8	13	1,971	1	10	4	2	33	0	4	1	71	13	39	327	4	0	
16	18	Velloolah Nogstapoorum Arsekotah.....	4,334½	125	9	29	896	18	10	15	0	55	3	10	2	20	8	30	350	0	2	
17	19		1,913	117	9	30	434	13	22	0	0	...	...	...	...	...	...	...	...	...	...
18	29		743½	12	15	36	188	9	39	0	0	35½	...	0	1	15	6	1	29½	117	1	
Total			42,386	2,175	8	30½	17,128	10	20	2	5	468	10	13	26½	446	15	26½	4,507	13	2	
Jagheer Villages ...			4,805½	234	11	6½	1,528	15	22½	6	4	59½	0	3	10	26	4	14	358	6	6	
Grand Total			4,719½	2,409	19	37	18,657	6	2½	8	9	527½	10	16	36½	473	0	0½	4,866	3	8	

HYDERABAD AFFAIRS.

		LAND REVENUE.										CASTOR SEEDS.										
		T HILL.																				
Number.	No. of Villages.	NAMES OF THE PURGNNAHS AND TALOOKS.	No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.			No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.		
				Candies.	Maunds.	Seers.	Candies.	Maunds.	Seers.	Rupces.	Annas.	Pies.		Candies.	Maunds.	Seers.	Candies.	Maunds.	Seers.	Rupces.	Annas.	Pies.
1	45	Havalee Kutcor.....	745	2	16	13	76	7	4	1,138	13	0	1794	1	13	3	35	2	12	444	6	0
2	37	Nizambad.....	294	0	5	10	3	17	0	46	1	0	174	0	5	38	3	8	4	49	12	0
3	62	Racheriah.....	1,394	11	7	30	293	2	20	4,656	0	0	145	4	5	0	22	5	20	298	4	0
4	41	Vej-aghery Velchal.....	.....	...	...	...	63	2	0	945	11	0	.....	...	...	...	13	17	4	207	1	6
5	31	Nunboghery Nameleconda.....	.....	...	...	...	55	12	0	832	8	0	.....	...	...	...	12	6	0	...	0	0
6	37	Korootla.....	.....	...	...	...	...	...	...	.....	...	...	.....	...	...	...	...	...	...	192	0	0
7	50	Sanagurum.....	.....	...	...	...	...	...	...	.....	...	...	.....	...	...	...	...	...	...	...	...	...
8	30	Thevecondah.....	145	2	4	25	34	15	0	1,080	0	0	15	0	12	0	8	0	0	320	0	0
9	22	Polass.....	93	0	17	38	32	8	32	1,026	0	0	.....	...	...	...	6	4	0	...	0	0
10	21	Anthagery.....	.....	...	...	...	10	18	0	163	0	0	.....	...	...	...	...	...	...	93	0	0
11	10	Vempully.....	317	2	13	36	40	1	25	1,384	1	0	8	0	2	8	2	10	0	62	8	0
12	12	Nanapally.....	95	1	11	32	36	0	0	247	0	0	17	0	5	32	9	5	0	70	0	0
13	25	Kearum.....	.....	...	...	...	22	14	0	338	13	0	.....	...	...	...	...	16	0	131	6	0
14	11	Moncondoor.....	124	3	4	4	8	1	30	263	12	0	.....	...	...	...	...	...	...	...	...	...
15	51	Velthe.....	270	1	15	20	16	0	0	400	0	0	.....	...	...	...	...	...	...	...	...	...
16	18	Yamulvadab.....	7964	5	10	17	97	17	26	1,729	1	6	994	0	19	18	20	19	12	222	9	3
17	19	Velloolab.....	8834	2	2	34	35	13	25	905	1	4	22	0	6	18	1	18	12	49	11	0
18	29	Noostlapoorum.....	211	0	16	9	13	11	32	398	0	0	2	0	0	36	0	3	0	5	0	0
19	29	Areekotah.....	125	6	2	24	7	1	24	363	12	0	.....	...	...	...	...	...	...	...	...	...
		Total.....	5,2334	41	9	12	847	4	18	15,917	9	10	5454	8	10	33	144	14	24	2,145	9	9
	51	Jagheer Villages ...	1714	0	19	39	16	13	21	1,083	14	0	25	0	13	36	7	13	31	150	3	2
		Grand Total	5,4054	15	9	11	863	17	39	17,001	7	10	5704	9	4	29	152	8	15	2,295	12	11

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Number.		No. of Villages.	OIL RIND TOTAL.										TOBACCO.										No. of Villages.	
			No. of Fields.	Quantity Sown.			Quantity Produced.			Amount.		No. of Fields.	Candies.	Maulds.	Seers.	Rupces.	Annas.	Pies.	Candies.	Maulds.	Seers.	Amount.		
				Candies.	Maulds.	Seers.	Candies.	Maulds.	Seers.	Rupces.	Annas.													
																						Candies.		Maulds.	Seers.	Candies.	Maulds.	Seers.	Rupces.	Annas.
1	45	{ Havalee Kutcoor	924½	4	9	16	111	9	16	1,583	3	0	40½	0	0	33½	20	18	35	401	4	0		
2	37	{ Nizamabad	97	0	11	8	7	5	4	95	13	0	5½	0	0	7½	7	11	11	140	4	0		
3	62	{ Racherlah	1,479	15	12	30	315	8	0	4,954	4	0	24½	0	0	11½	13	10	0	239	4	0		
4	41	{ Vejiagberry Velchal .....		...	...	...	76	19	4	1,152	12	6	.....	...	...	...	5	10	0	107	0	0		
5	31	{ Nunthaghere Nameleconda .....		...	...	...	55	12	0	832	8	0	.....	...	...	...	6	5	0	125	9	0		
6	37	{ Korootla .....		...	...	...	12	6	0	192	0	0	.....	...	...	...	.....	...	...	.....	...	...
7	50	{ Sanegurum .....		...	...	...	42	15	0	1,400	0	0	4	0	0	6	4	0	0	80	0	0		
8	30	{ Thevecondah	160	2	16	25	32	8	32	1,026	0	0	12	0	0	8½	4	15	0	95	4	6		
9	22	{ Polase	93	...	...	...	17	2	0	256	0	0	.....	...	...	...	.....	...	...	.....	...	...
10	21	{ Anthagery .....		...	...	...	42	11	25	1,446	9	0	8½	0	0	6½	8	5	0	242	8	0		
11	10	{ Vempully	325	2	16	4	45	5	0	317	0	0	4	0	0	4	6	10	0	54	8	0		
12	12	{ Namapully	112	1	17	24	31	10	0	470	3	0	.....	...	...	...	5	0	0	109	15	0		
13	25	{ Koarum .....		...	...	...	8	1	30	263	12	0	9	0	5	17	18	17	0	363	12	0		
14	11	{ Moncondoor	124	3	4	4	16	0	0	400	0	0	19½	0	0	12	5	0	0	90	0	0		
15	51	{ Velthe	270	1	15	20	118	16	38	1,951	10	9	15½	0	0	16	23	14	15	288	10	0		
16	13	{ Yaulvadiab	893½	6	9	35	37	11	37	954	12	4	.....	...	...	...	.....	...	...	.....	...	...
17	19	{ Velloclah	910½	2	9	12	13	14	32	403	0	0	.....	...	...	...	.....	...	...	.....	...	...
18	29	{ Noestlaporum	213	0	17	5	7	1	24	363	12	0	.....	...	...	...	.....	...	...	.....	...	...
		{ Arekotah	125	6	2	24							.....	...	...	...	.....	...	...	.....	...	...
		Total	5,779	50	0	5	991	19	2	18,063	3	7	133½	0	8	2	129	16	21	2,337	14	6		
	51	Jagheer Villages.....	190½	1	13	35	24	7	12	1,234	1	2	29	0	0	17	6	3	0	251	12	0		
		Grand Total.....	5,969½	51	14	0	1,016	6	14	19,297	4	9	162½	0	8	19	135	19	21	2,589	10	6		

HYDERABAD AFFAIRS.

NAMES OF THE PURGUNNAHS AND TALOOKS.			GRAND TOTAL OF THE LAND REVENUE.										MOTHERFUND AMOUNT.			PAID IN CASH.			
Number.	No. of Villages.		Quantity Sown.			Quantity Produced.			Amount.		Toddy Amount.			Pies.	Annas.	Rupces.			
			Caudies.	Maunder.	Seers.	Caudies.	Maunder.	Seers.	Rupces.	Annas.	Pies.	Rupces.	Annas.				Pies.		
1	45	Havalee Kutcoor	372	2	204		2,821	16	9		28,673	12	0	1,308	15	0	6,312	13	0
2	37	Nizamabad	187	16	264		1,754	4	3		22,041	0	0	430	4	0	2,776	12	0
3	62	Racheralah	513	3	144		3,205	13	38		34,979	3	0	1,182	4	0	5,839	8	0
4	41	Vellaghery Vetchal	78	1	26		639	17	39		10,393	11	3	543	12	0	1,873	4	0
5	31	Nanthaghare Nanteleonda	92	19	31		1,467	17	9		13,686	11	0	933	3	0	3,901	8	0
6	37	Kerocla	129	12	30		910	0	0		12,298	0	0	489	10	0	2,830	0	0
7	50	Sategurum	25	10	6		397	17	0		9,687	6	2	174	5	6	738	4	0
8	30	Thevecondah	26	11	254		351	6	14		7,848	4	2	94	1	6	848	4	0
9	22	Polass	23	1	20		318	15	15		4,132	8	0	131	2	0	1,284	0	0
10	21	Anthagery	64	8	154		552	8	2		9,506	3	0	357	12	0	1,689	0	0
11	10	Vempully	46	6	32		697	16	20		3,880	8	0	94	6	0	815	8	0
12	12	Nanapully	21	17	6		406	13	37		4,074	12	2	359	12	3	891	2	0
13	25	Kuarum	145	10	32		1,068	0	17		19,212	15	0	569	6	0	3,044	8	0
14	11	Moncondeor	38	8	32		253	7	21		4,707	14	0	99	0	0	986	0	0
15	51	Velhhe	202	2	25		2,185	6	22		24,241	12	11	811	7	6	2,909	8	0
16	18	Xannulvadah	131	9	3		954	18	37		16,331	12	0	708	0	2	2,801	8	2
17	18	Velloolah	118	6	35		448	8	14		7,260	0	0	141	6	0	1,188	4	0
18	29	Noostlaj corum	18	19	37		291	13	124		3,433	13	0	151	12	0	312	0	0
19		Arsckotah																	
Total			2,236	10	234		18,637	1	294		2,36,490	1	8	8,580	6	11	41,041	11	2
Jagheer Villages			236	11	284		1,592	3	84		41,324	8	0	2,472	6	6	7,229	1	0
Grand Total			2,473	2	124		20,289	4	384		2,78,314	9	8	11,052	13	5	48,270	12	2

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	PAID IN CASH.																	
			ABRACK AMOUNT.			TOTAL AMOUNT.			TOWN DUTY AMOUNT.			SIWAGUMMAH AMOUNT.			TOTAL AMOUNT.			GRAND TOTAL AMOUNT.		
			Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.
1	45	Havalee Kutcoor.....	248	0	0	6,560	13	0	267	8	0	802	8	0	8,939	12	0	37,613	8	0
2	37	Nizamabad.....	.....	.....	.....	2,776	12	0	540	0	0	1,135	5	0	4,882	5	0	27,523	5	0
3	62	Racherlah.....	.....	.....	.....	5,848	8	0	866	13	0	192	5	0	8,089	14	0	43,069	1	0
4	41	Vejaghere Velchal.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	31	Nunthaghere Nameleconda.....	9	0	0	1,873	4	0	300	0	0	29	0	0	2,746	0	0	13,139	11	3
6	37	Korootla.....	.....	.....	.....	3,901	8	0	340	0	0	60	0	0	5,234	11	0	18,921	6	0
7	50	Seuegurum.....	.....	.....	.....	2,830	0	0	1,008	0	0	460	8	0	4,788	2	0	17,086	2	0
8	30	Thevecondah.....	.....	.....	.....	738	4	0	700	12	3	.....	.....	.....	1,613	5	9	11,300	11	11
9	22	Polass.....	.....	.....	.....	848	4	0	500	0	0	.....	.....	.....	1,442	5	6	9,290	9	8
10	21	Ambagery.....	.....	.....	.....	1,284	0	0	338	0	0	300	0	0	2,053	2	0	6,185	10	0
11	10	Vempully.....	.....	.....	.....	1,689	0	0	650	0	0	265	0	0	2,961	12	0	12,467	15	0
12	12	Namapully.....	.....	.....	.....	815	8	0	.....	.....	.....	300	0	0	1,209	14	0	5,090	6	0
13	25	Koaram.....	.....	.....	.....	891	2	0	75	0	0	44	14	0	1,370	12	3	5,445	8	5
14	11	Moncondoor.....	.....	.....	.....	3,044	8	0	.....	.....	.....	320	7	0	3,934	5	0	23,147	4	0
15	51	Veltha.....	.....	.....	.....	986	2	0	400	0	0	28	10	0	1,513	10	0	6,221	8	0
16	18	Yamulvadah.....	981	8	0	3,891	0	0	.....	.....	.....	22	11	0	4,725	2	6	28,966	15	5
17	19	Vello-lah.....	.....	.....	.....	2,801	8	2	1,055	15	5	690	2	3	5,255	10	0	21,587	6	0
18	29	Nesstapactum.....	.....	.....	.....	1,188	4	0	110	0	0	331	0	0	1,770	10	0	9,039	10	0
		Anc-kotah.....	301	0	0	613	0	0	120	0	0	1	6	0	886	2	0	4,319	15	0
		Total.....	1,539	8	0	42,581	3	2	7,272	0	8	4,983	12	3	63,417	7	0	3,60,407	8	0
	51	Jagheer Villages.....	256	12	0	7,485	13	0	534	10	0	1,872	8	9	12,365	6	3	53,689	14	8
		Grand Total.....	1,796	4	0	50,067	0	2	7,806	10	8	6,856	5	0	75,782	13	3	3,54,097	6	11

P. I. Rerr

HYDERABAD AFFAIRS.

Abstract of General Statistical Table showing the Total of each Division of the Population, the amount of Land Revenue, and that derived from other Taxes.

Number.	No. of Villages.	NAMES OF THE PURGENNAHS AND TALOOKS.	VILLAGES AND HAMLETS.			TANKS AND WELLS.			MOUNTS.			PLOUGHS.			CATTLE.		
			Villages.	Hamlets.	Total.	In Repair.	Out of Repair.	Total.	Mts.	Rice Ploughs.	Dry do.	Total.	Ploughing and Draught Cattle.	Other Cattle.	Total.		
1	45	Havalee Kurcoor	48	51	99	550	516	1,066	562	723	802	1,525	17,543	9,330	26,873		
2	37	N'zambad	37	23	60	265	228	493	275	620	370	990	8,915	3,961	12,876		
3	62	Rachlerlah	62	34	96	336	271	607	310	552	967	1,519	14,667	7,900	22,467		
4	41	Vejiaghery Velchal	41	20	61	235	576	811	235	359	516	875	11,297	8,409	19,706		
5	31	Nunthaghere Nameleconda	27	23	50	417	362	779	502	344	358	702	9,274	5,403	14,677		
6	37	Korootla	36	22	58	279	561	840	394	349	419	768	10,044	4,665	14,709		
7	50	Sanagurum	50	16	66	170	553	723	...	19	644	663	8,914	4,987	13,901		
8	30	Thevecondah	31	8	39	209	490	699	277	197	217	414	3,330	2,821	5,951		
9	22	Polass	22	16	38	137	148	285	178	157	176	333	3,994	2,565	6,549		
10	21	Anthagery	21	8	29	221	301	522	190	201	347	548	3,129	1,471	4,600		
11	10	Vempully	10	3	13	59	153	212	77	84	114	198	2,663	1,391	4,054		
12	12	Nanapully	13	3	16	137	467	604	147	104	175	279	3,676	1,917	5,593		
13	25	Koaram	26	16	42	289	374	663	337	405	469	874	12,493	5,241	17,734		
14	11	Moncondoor	11	3	14	115	835	950	113	126	124	250	3,277	2,001	5,278		
15	51	Velthe	53	39	92	662	621	1,283	817	841	640	1,491	13,632	7,742	21,374		
16	18	Yanulvadah	16	23	39	750	279	1,029	3	310	317	627	5,308	3,597	8,905		
17	19	Velloolah	19	7	26	235	337	572	296	320	272	592	11,328	5,663	16,991		
18	29	Noostlapoorum	37	11	48	147	219	366	50	118	399	517	3,492	1,607	5,099		
		Areekotah															
		Total	560	326	886	5,213	6,541	11,754	4,763	5,829	7,326	13,155	146,976	80,361	227,337		
	51	Jagheer Villages	49	46	95	736	596	1,332	730	1,004	993	1,997	25,681	13,973	39,654		
		Grand Total	609	372	981	5,949	7,137	13,086	5,493	6,833	8,319	15,152	172,657	94,334	266,991		

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Abstract of General Statistical Table (continued).

Number.	No. of Villages.	NAMES OF THE PURGUNNAHS AND TALOOKS.	MEERASDARS.				CULTIVATORS OR RYOTS.					Total.
			Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	
1	45	Havalee Kutcoor	1,172	1,839	1,946	1,736	5,511	935	1,543	1,603	1,369	4,515
2	37	Nizamabad	860	1,377	1,412	1,038	3,837	484	897	949	643	2,489
3	62	Racherlah	921	1,555	1,659	1,770	4,984	977	1,834	1,949	1,989	5,772
4	41	Vejagbery Velchal	442	764	785	842	2,391	535	972	995	954	2,921
5	31	Nunthaghere Namelecondah	511	745	792	704	2,241	605	1,018	1,106	905	3,029
6	37	Korodla	402	738	785	809	2,332	325	590	675	544	1,809
7	50	Sanegurum	513	789	781	700	2,270	638	910	919	808	2,637
8	30	Thevecondah	333	480	531	578	1,583	574	688	656	776	2,120
9	22	Polas	253	346	335	341	1,022	162	237	236	218	691
10	21	Anthagery	252	295	306	341	942	474	551	577	476	1,604
11	10	Vempully	142	204	210	251	663	74	121	124	147	392
12	12	Namapully	159	217	235	314	763	141	184	203	270	657
13	25	Koaram	512	879	906	832	2,617	489	875	849	830	2,554
14	11	Mencondoor	190	286	291	299	876	139	214	217	217	648
15	51	Velthe	1,127	1,769	1,760	1,414	4,943	863	1,486	1,543	1,241	4,270
16	18	Yanulvadah	375	602	582	435	1,619	401	864	859	596	2,319
17	19	Velcoolah	342	575	551	594	1,720	276	484	506	523	1,519
18	29	Noostlapcorum	221	312	324	326	962	308	466	450	355	1,271
		Arsekotah										
		Total	8,787	13,762	14,191	13,324	41,277	8,400	13,934	14,416	12,867	41,217
	51	Jagheer Villages	1,411	2,229	2,298	2,108	6,635	1,407	2,409	2,430	1,860	6,699
		Grand Total	10,198	15,991	16,489	15,432	47,912	9,807	16,343	16,846	14,727	47,916

HYDERABAD AFFAIRS.

Abstract of General Statistical Table (continued).

Number.	No. of Villages.	MOTHURBA.					KOOSHBASH.					GRAND TOTAL.				
		Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.	Houses.	Men.	Women.	Children.	Total.
1	45	1,196	1,882	1,978	1,797	5,657	366	511	555	393	1,459	3,669	5,765	6,082	5,295	17,142
2	37	549	848	857	710	2,415	462	643	670	489	1,802	2,355	3,765	3,888	2,880	10,533
3	62	1,214	2,046	2,099	2,255	6,400	601	894	936	946	2,776	3,713	6,329	6,643	6,960	19,932
4	41	496	797	833	949	2,579	376	533	557	532	1,622	1,849	3,066	3,170	3,277	9,513
5	31	639	1,059	1,152	905	3,116	464	609	707	597	1,913	2,239	3,431	3,757	3,111	10,299
6	37	626	902	968	949	2,819	261	331	356	399	1,086	1,674	2,561	2,784	2,701	8,046
7	50	430	589	574	574	1,737	172	212	207	170	589	1,753	2,500	2,481	2,252	7,233
8	30	98	129	142	191	462	38	42	56	47	145	1,043	1,339	1,385	1,592	4,316
9	22	241	346	363	351	1,060	138	178	177	137	492	794	1,107	1,111	1,047	3,265
10	21	163	187	187	153	527	165	171	179	141	491	1,054	1,204	1,249	1,111	3,564
11	10	119	162	180	186	528	73	99	91	97	287	408	586	605	681	1,872
12	12	174	204	220	300	724	33	43	41	58	142	507	648	699	942	2,289
13	25	639	1,080	1,099	1,037	3,216	415	685	622	608	1,915	2,055	3,519	3,476	3,307	10,302
14	11	167	229	236	243	708	127	185	230	166	581	623	914	974	925	2,813
15	51	788	1,162	1,270	1,044	3,476	408	520	531	469	1,520	3,186	4,937	5,104	4,168	14,209
16	18	639	998	1,101	857	2,956	639	855	934	759	2,548	2,054	3,319	3,476	2,647	9,442
17	19	388	526	574	693	1,793	130	175	180	205	560	1,136	1,760	1,811	2,021	5,592
18	29	202	272	268	254	794	125	167	162	129	458	856	1,217	1,204	1,064	3,485
Total		8,788	13,418	14,101	13,448	40,967	4,993	6,853	7,191	6,342	20,386	30,968	47,967	49,899	45,981	1,43,817
Jagheer Villages		1,668	3,372	3,530	3,017	9,919	1,843	2,865	3,218	2,084	8,167	6,329	10,875	11,476	9,069	31,420
Grand Total		10,456	16,790	17,631	16,465	50,886	6,836	9,718	10,409	8,426	28,553	37,297	58,842	61,375	55,050	1,75,267

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Abstract of General Statistical Table (continued).

Number.	Number of Villages.	NAMES OF THE PURGUNNAs AND TALOOKS.	AMOUNT OF PRODUCE.												Grand Total.		
			Amount Produced by Land Revenue.			Mothurpha.			Arrack and Toddy.			Town Duty and Siwagumma.					
			Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.	Rupces.	Annas.	Pies.
1	45	Havalee Kutcoor.....	28,673	12	0	1,308	15	0	6,560	13	0	1,070	0	0	37,613	8	0
2	37	Nizambad.....	22,641	0	0	430	4	0	2,776	12	0	1,675	5	0	27,523	5	0
3	62	Racherlah.....	34,979	3	0	1,182	4	0	5,848	8	0	1,059	2	0	43,069	1	0
4	41	Vejjaghery Velebal.....	10,393	11	3	543	12	0	1,873	4	0	329	0	0	13,139	11	3
5	31	Nanthaghore Namelecondah.....	13,686	11	0	933	3	0	3,901	8	0	400	0	0	18,921	6	0
6	37	Koroolla.....	12,298	0	0	489	10	0	2,830	0	0	1,468	8	0	17,086	2	0
7	50	Sanegurum.....	9,687	6	2	174	5	6	738	4	0	700	12	3	11,300	11	11
8	30	Thevecondah.....	7,848	4	2	94	1	6	848	4	0	500	0	0	9,290	9	8
9	22	Polas.....	4,132	8	0	131	2	0	1,284	0	0	638	0	0	6,185	10	0
10	21	Anthargy.....	9,506	3	0	357	12	0	1,689	0	0	915	0	0	12,467	15	0
11	10	Vempully.....	3,880	8	0	94	6	0	815	8	0	300	0	0	5,090	6	0
12	12	Namapully.....	4,074	12	2	353	12	3	891	2	0	119	14	0	5,445	8	5
13	25	Koaram.....	19,212	15	0	569	6	0	3,044	8	0	320	7	0	23,147	4	0
14	11	Moncendoor.....	4,707	14	0	99	0	0	986	0	0	428	10	0	6,221	8	0
15	51	Vetthe.....	24,241	12	11	811	7	6	3,891	0	0	22	11	0	28,966	15	5
16	18	Yamulvadah.....	16,331	12	0	708	0	2	2,801	8	2	1,746	1	8	21,587	6	0
17	19	Velloolah.....	7,260	0	0	141	6	0	1,188	4	0	441	0	0	9,030	10	0
18	20	Noolthaperum.....	3,433	13	0	151	12	0	613	0	0	121	6	0	4,319	15	0
		Aisekotah.....	2,36,990	1	8	8,580	6	11	42,581	3	2	12,255	12	11	3,00,407	8	8
	51	Total.....	41,324	8	0	2,472	6	6	7,485	13	0	2,407	2	9	53,689	14	3
		Jagheer Villages.....	2,78,314	9	8	11,052	13	5	50,067	0	2	14,662	15	8	3,54,997	7,852	11
		Grand Total.....															

THOS. L. BELL, SERGEON,
3rd Nizam's Cavalry,
On Special Duty.

GEOLOGICAL PAPERS ON WESTERN INDIA, INCLUDING CUTCH, SINDE AND THE EAST COAST OF ARABIA. edited for the Government by HENRY J. CARTER, Assistant Surgeon, H.C.S., Bombay. (Extracts.)

The Godavery (see Map) rises in the basaltic region described by Colonel Sykes (Geol. Trans., vol. iv., pt. 2, 1836), and, greatly increased in size, it enters the granitic table-land of the Deccan, and flows at the southern foot of the Sichel mountains into a sandstone and argillaceous limestone country. This district is similar to that of Bundelcund and Malwa; it also contains diamonds, and has been much broken up by erupted rocks. From the north the Godavery derives large supplies of water from the great rivers rising south of the Nerbudda and the Taptee, in basaltic tracts, the soil of which being retentive of moisture, the water is everywhere near the surface. From the south it receives only the Munjerah river, which, flowing through arid granitic plains, furnishes but a scanty addition of water, except during the rainy season. Through a pass in the gneiss mountain of Papcondah it enters the plains of the Coromandel Coast. In this district the sandstone reappears, at an elevation little above that of the sea; but basaltic hills, several hundred feet in height, in which marine fossils have recently been discovered, exist almost within the delta formed by its sediment.

The Kistnah derives its waters from a number of considerable rivers rising in the basaltic and gneiss summits of the Western Ghats, which condense the greater part of the clouds carried by the south-west monsoon from the Indian Ocean. Flowing through the territories of the Southern Mahrattas, a country covered with a rich basaltic soil, and abounding in schistose limestone, sandstone, granitic rocks, and basalt, it enters the granitic platform of the Deccan, the limits of which in this direction are unknown. The limestones and sandstones, however, soon reappear on descending the river, and extend across to the basin of the Pennar, and as far as the ascent to the granitic platform of the Mysore. It is on the banks of the Kistnah that the richest diamond mines occur, and that the sandstones acquire their greatest elevation, amounting to more than 3,000 feet, the river passing through mural precipices of this rock and of the schistose limestones to be presently described. It then enters the plains of the Carnatic, where the same rocks occur, sometimes a little elevated above the level of the sea, at others forming the caps of granite mountains, or broken up by varieties of greenstone and basalt. Thence, passing through a narrow gorge in the gneiss hills of Bezwarrah, it enters the alluvial plains continuous with the delta of the Godavery. Its waters, however, are more loaded with mud than the last-mentioned beautiful river, and the deposit of new land may be seen, by the inspection of a common map, to be proportionably great.

(See Map and Section 1.)

With regard to the granitic platform of the Deccan, which intervenes between the Kistnah and Godavery, much accurate information is already before the public; it will therefore be necessary only to observe that it is intersected by numerous greenstone dikes (sometimes of greenstone porphyry), having for the greater part a direction from S. by E. to N. by W., and not very different from that of several of the ranges of basaltic mountains to the north.

These dikes, and the detached masses connected with them, are entirely composed of a crystalline compound of hornblende and felspar, without distinct crystals of augite; and I have never detected olivine in them. The rock shows a tendency to separate into spheres composed of concentric layers and into irregular prisms; and the same structure in some degree occurs in the granite, syenite, pegmatite, &c., of the whole of the south of India. The greenstone is exceedingly hard and difficult to work, but it takes a most beautiful and durable polish, as in the magnificent mausoleums of Golcondah, the tombs of Hyder Ali and Tippoo.

Sultan at Seringapatam, and in many of the sculptures of the Carnatic pagodas.^o Where these dikes rise into hills, the summits only are composed of the compact greenstone, which graduates below into the granite of the surrounding country. Many of the veins of basalt in the passes of the Mysore and Neilgherry mountains differ from these, in possessing the structure of the compact basalt of Bombay and other places in the trap countries, and in branching into narrow veins (often not an inch thick), which traverse the granite without mixing with it; while the ordinary greenstone dikes of the Deccan are almost always accompanied by separate nodules, of greater or less dimensions, insulated in the granitic mass, the component parts of which appeared to me to be there, in most cases, arranged in larger crystals, and to be more subject to decay, than in other places. I could not resist the inference that at the time of the formation of these dikes the granite was in a state approaching to fluidity; although, as some of the narrow veins can be traced for many miles through the granite, they do not appear to have been formed at the same time.

Several small basaltic hills are insulated in the granitic platform in the line of route between Hyderabad and Nirmul, and they are based on decaying granite. Their flat summits and steep sides correspond with the hills of the great trap district; and the general line of bearing of the broken ranges of which they appear to form a part does not differ much from that of the basaltic mountains to the north, or from the greenstone dikes; but many hills are scattered over the plains to the east and west, and cross this line of route in every direction. The lower part of the hills is composed of thin tables or laminae of a sonorous trap, and the upper of globular concentric basalt, the external layers of which are extremely friable, generally greyish, or soft and soapy to the feel, and are of a greenish tint, except where the stone is much loaded with ferruginous grains of a reddish brown colour. In some places the metallic matter has the appearance of having been partially smelted, and is of a fine red hue.

The nuclei of the "concentric basalt," which are exceedingly tough, and resist decomposition powerfully, are of a deep black colour, and contain large crystals of olivine, and small kernels of calcedony. The first of these minerals is not found in the soft external coats, yet it is so closely united with the substance of the rock as not to admit of a doubt of its being of contemporaneous formation, and not, as supposed by Berzelius,[†] a fragment of a pre-existing stone enveloped in the liquid matter. Small but very characteristic specimens of calcedony are of more frequent occurrence in the softer portions of the rock, especially between the concentric nodules; but they are intimately mixed with their substance. It is remarkable that I detected no calcareous minerals in similar situations in these hills, although the rock is so impregnated with lime as to have led to an extensive deposit of calc-tuff (Kunkur), at present forming along its base, and projecting sometimes half a foot from between the partings of the basaltic tables. "The presence of olivine, the soft wacke in which the globular basalt is imbedded, the less crystalline structure, the passage into a porous amygdaloid containing calcedonies, zeolites, &c., and the granite in the neighbourhood of all the smaller masses differing little from that at a distance," may perhaps be sufficient to distinguish these insulated basaltic hills from the greenstone.[‡]

On approaching the Godavery the granite in some degree changes its appearance, containing large and beautiful crystals of red felspar, occasionally imbedded in veins of transparent quartz, clouded with spots and wavy lines of a turbid milky colour. Greenstone dikes are there more common. The river flows over granite, which is intersected by several dikes of greenstone, running more in a north and south direction than those above referred to, and having many minute white crystals diffused through their substance. The dikes project from 8 to 10 feet above the granite, and are divided into rhomboidal masses by fissures, in which lime is deposited. The bed of the river is covered by numerous fragments of

^o It is familiarly known in India as "black granite."

[†] Edinburgh Journal of Science, January 1839.

[‡] Journal of the Asiatic Society of Bengal, February 1836, p. 105.

calcedonies, zeolites, and other minerals found in volcanic rocks ; and they have been cemented into a more or less solid calcareous conglomerate. The banks are composed of a black basaltic soil, from the lower part of which, where it rests on the granite, as well as from the divisions between the several layers of alluvium, thin slabs of a clayey calc-tuff (Kunkur) project, and are connected above with portions formed round the roots of plants, and below with other layers spread out between the different strata of alluvial earth.* These appearances sufficiently indicate the neighbourhood of the basaltic range of mountains distinguished in Arrowsmith's large map as the Sichel or Shesha hills, but which are locally known by the name of the *Nimul range*, from the large town situated six miles from the difficult pass leading up the steep escarpment presented by their southern face. None of the stratified primary rocks are seen at the foot of these hills in the line of the section ; but twenty miles to the east of Nimul, and a few miles south of the mountains, hornblende slate occurs, resting on granite and quartz rock.

Iron Ore, Mines, and Manufacture of the Steel.—The magnetic iron ore employed for ages in the manufacture of the Damask steel used by the Persians for sword-blades is obtained from this schist. The mines I examined are those of Deendoortee, but the ore is extensively distributed. The minute grains or scales of iron are diffused in a sandstone-looking gneiss or micaceous schist, passing by insensible degrees into hornblende slate, and sometimes containing amorphous masses of quartz. The strata are much broken up and elevated, so that the dip and direction are in no two places the same, and bear no relation to the mountains to the north.

Manufacture, &c.—The mines are mere holes dug through the thin granitic soil, and the ore is detached without difficulty by small iron crowbars. It is then collected and broken on projecting masses of granite or quartz by means of a conical-shaped fragment of compact greenstone ; but when too hard to yield to this simple instrument it is previously roasted. The sand thus procured is washed in shelving depressions dug near a tank, and the heavier parts, separated by this process, are exactly similar to Voysey's specimens of the iron sand used in the manufacture of Damascus steel at Kona-Sumoondrum, in the same neighbourhood ; but from his published papers it does not appear that he had seen the rock from which they were derived. In other respects all the information I could procure accurately corresponds with that given in his interesting paper.† The ore is then smelted with charcoal in small furnaces, which have often been described. I did not see any flux used ; but, although I watched the whole process, from the digging of the ore till it was formed into bars, I will not assert that none was employed. The iron has the remarkable property of being obtained at once in a perfectly tough and malleable state, requiring none of the complicated processes to which English iron must be subjected previous to its being brought into that state. Mr. Wilkinson, who has investigated the history of Indian steels with much scientific and practical skill, did me the favour to submit to experiment a specimen of this iron as it came from the furnace. He found it to be extremely good and tough, and considered it superior to any English iron, and even to the best descriptions of Swedish. The Persian merchants who frequent the iron-furnaces of Kona-Sumoondrum are aware of the superiority of this iron, and informed Dr. Voysey that in Persia they had in vain endeavoured to imitate the steel formed from it, a failure which could be ascribed only to the difference of the materials used, as the whole process of the conversion into steel was conducted under their own superintendence. It is also probable that there are few places in India where an ore of equal value is so easily procured ; otherwise its distant inland situation, in a difficult and unsettled country, would not have retained a reputation for so many ages. In the manufacture of the best steel three-fifths of this iron is used, the other two-fifths being obtained from the Indoor district, where the ore appears to be a peroxide. It is evident that if

* Further details on this part of the route will be found in some notes explanatory of a collection of specimens presented to the Asiatic Society of Bengal, and published in the Journal of that Institution for February 1836.

† Journal of the Asiatic Society of Bengal, vol. i., p. 245.

the beautiful water of the Damascus blades is derived from the crystallization of the steel, the use of two very different varieties of iron, one of which has been ascertained to be of such admirable quality, must have an important influence on the appearance and quality of the manufacture.

As these mines afford a boundless supply of ore easily wrought, and are situated in the neighbourhood of vast forests, and near a river navigable for boats during part of the year, it is probable that at no distant period, when the native Government has undergone some amelioration, iron may become an important article of commerce. On this account, and because, although much has been written regarding Indian steel, nothing has yet been brought prominently forward regarding the finer kinds of iron ore with which that country abounds, I will make a few additional observations regarding them.

Dr. Heyne has accurately described the manufacture of iron in the Carnatic to the south of the Pennar river, and he states that it is when first smelted extremely brittle, requiring several operations to bring it into a malleable state. I possess specimens of two varieties of ore used in the district in which he observed the processes, and where I have myself seen them carried on. The one, an iron sand, collected in the beds of rivers, consists of the protoxide mixed with much of the peroxide; the other, a red schist, is almost entirely composed of red oxide, but in the centre of the mass it affects the magnet. Not far from where this rock occurs I collected specimens of hornblende schist, leaving little doubt as to the ores being of the same nature, the former having become altered *in situ*, in the same manner as some of the superficial strata at Deemdoortee are seen to do. I therefore conclude that the superior quality of the Nirmul iron depends on the ore being a comparatively pure protoxide. It certainly is not dependent on the nature of the fuel, which is much the same in both places.* Captain Herbert, indeed, long ago suggested that the superiority of the Gwalior iron ore over that principally worked in the Himalayahs depended on the former being a magnetic ore, like that of Sweden; but the first accurate information on the subject was communicated by Dr. Royle to Mr. De La Beche, who states,† on the authority of that gentleman, that magnetic iron ore is extensively diffused in hornblende slate in the central range of mountains in India, and that it also occurs in the Himalayahs. This geological position corresponds with that of the Nirmul ore; but the latter does not bear any resemblance except in its peculiar lustre to the Menaccanite of Cornwall, to which it is compared by Mr. De La Beche; nor could I detect any titanium in it. With regard to the geological relations of the magnetic iron ore, it is also necessary to observe that in India it is not confined to the hornblende schist, but is found extensively distributed in the granite and gneiss of the Carnatic and Mysore, in quartz rock near the iron works of Porto Novo, and, as has already been observed, associated with galena in the diamond sandstone of Cuddapah. The discovery of a mineral so generally confined to the primary rocks in the great sandstone formation affords an additional argument in favour of the opinion of those who consider this rock and the subjacent schists as equivalents to the older European sedimentary formations, rather than to those of the supermedial order.

Returning to the line of route, the granite, on approaching to the Sichel hills, becomes softer and decomposes rapidly; and the soil gradually changes to the well-known black basaltic mould known in India by the name of "cotton ground," and, as usual, it is mixed with calcedonies, zeolites, &c. Amongst these minerals were some fragments of a red colour and considerable specific gravity, though full of irregular cavities, and so like the slag of an iron furnace that I considered them to have had that origin, till I discovered a considerable mass of a similar nature protruding from the granite and black soil by which it was covered. Along with

* Iron, which has been ascertained to be superior, for many purposes, to the best German iron, has been recently imported from the western coast of India; but the mines from which it was obtained have not been examined. Captain Jervis, of the Bombay Engineers, however, informs me that ores powerfully affecting the magnet exist in great quantity at Taygoor, a village of the Koncan not far from the port from which the iron in question was procured.

† Manual of Geology, 3rd edn., p. 435.

these fragments were others of a semivitrified matter, containing small white crystals of felspar, and hardly to be distinguished from a piece of granite fused by Dr. Voysey in the steel furnaces of the neighbouring district. The granite constitutes the surface rock a little further, gradually passing into a black compact basalt intermixed with many white spots, apparently of felspar. The trap then becomes softer, forming small hills of a cellular amygdaloid, abounding in cavities lined with green earth, and many of them filled with calcedonies, zeolites, quartz crystals, and, more rarely, calcareous spar, of the same kind as those, so remarkable for their beauty, in the portion of this formation described by Colonel Sykes (Geological Transactions, vol. iv., p. 422).^a The crystals also occur in seams, or are diffused through the trap, and in both cases are intimately mixed with its substance. In the bed of a torrent between two of these hillocks I met with some soft, clayey, schistose fragments, and others of a siliceous character, and of a black bituminous appearance in the centre, containing very perfect specimens of the *Paludina Deccanensis* (Pl. III., fig. 20), and fragments of other shells to be hereafter described. Those which I examined were converted into calcedony. A laborious research on the hill failed to discover them *in situ*; but about half-way up the escarpment of the principal mountain, which is very steep, and composed of concentric nodular basalt, imbedded in a soft greenish wacké, a narrow band of a singular quartz rock projected about two feet from the surface. It was remarkably scabrous, of various shades of white and red, and had cavities on its surface covered with fine silky crystals. It had every appearance of having been forced into its present situation when the basalt covered and partially melted the bed to which it belonged.

Many fragments of this rock were found below with the shells; and it was again met with, together with the same and other fossils, imbedded in basalt, near Hutnoor. The specific gravity of this rock is 2.473, and some of the specimens effervesced feebly in acids, a portion of lime being dissolved, circumstances in which it corresponds with a similar formation found by Voysey associated with shells, probably of the same kind, at Medcondah (south of the Godavery), an insulated basaltic hill resting on granite, to which I shall have occasion again to refer. The highest summit of the hills above the locality of the fossils is conical, but it is capped by a perfectly horizontal stratified rock, the nature of which I could not determine. It is most probably tabular basalt, although that rock is seldom found in similar situations.

Such are the appearances presented on ascending the difficult pass leading up the steep escarpment of the Sichel hills, which form the southern boundary of the eastern portion of the great trap formation of Central India. The hills extend from the junction of the Wurdah and Godavery rivers (the basins of which they separate), till they are lost in the gradual rise of the country to the west, near Lonar (lat. 20°, long. 76° 30'), in the province of Aurungabad. Their direction is W.N.W., and, as far as can at present be inferred, they seem to be continuous to the east with numerous ranges of basaltic sandstone, and granitic hills, extending to the Eastern Ghats, at the lower parts of the course of the Godavery. The extreme breadth of the range, from the foot of the Nirmul pass to the town of Yedlabad (nearly on a level with the plain country of Berar), is about 40 miles; but several smaller hills, having for the greater part the same direction, are intimately connected with them to the north, as far as the Wurdah river, which has an elevation of little more than 600 feet above the sea. The Sichel hills are arranged in terraces, with steep sides having projecting spurs, and their summits rise occasionally into conical elevations with rounded or flat tops. They inclose narrow valleys abounding in streams, or support tablelands covered with black soil strewn with trap boulders, and having water

^a A beautiful variety of chabasis, having the angles replaced by triangular or pentagonal faces supporting a rhomboidal surface, of which beautiful specimens abound in certain localities of the western portion of the formation, has not been met with in this neighbourhood; but, like some other minerals of the basaltic district, it is not generally diffused in the rocks where it is most abundant; so that I have travelled for several hundred miles without meeting with it.

everywhere near the surface. A thick wood and grass jungle, composed of very different plants from those common on the granite hills, cover the whole tract, with the exception of the flat summits and some of the terraces, and render it unhealthy for the greater part of the year. The basalt of which they are composed is generally globular, the spheroids being sometimes of great size; but in many of the watercourses, even of the elevated table-lands, it has a stratified appearance. Small basaltic columns are also met with on the crests of some of the spurs and higher ridges; and where they occur no fossils and few minerals are found. Granite not only forms the base of the hills at Nirmul to the south, and Yedlabad to the north, but part of the mountains themselves, the basalt being seen to rest on decomposing granite about the centre of the range, in a deep ravine through which the Koorm river passes; it also again appears high in the table-land to the north of that river, and in one of the terraces of the northern descent, where the most extensive fossil beds were found. Further detail is unnecessary, as Dr. Voysey's admirable description of the Gawilghur mountains, forming the northern boundary of the great and fertile valley of Berar, as these hills do its southern limits, applies equally well to both ranges.⁶

The fossils were first discovered *in situ* near Mumoor, in the basaltic table-land north of the Koorm river, and were subsequently found in the descent of the hills towards Hutnoor, and in different parts of the Mucklegudy pass, leading into the Berar valley. They consist of numerous Gyrogonites; two species of Cypris; two, or perhaps three, species of Unio; and many individuals referable to the genera Paludina, Physa, and Limnea. (Plates II. and III.) The rock in which they occur varies in different places. Some of the finest specimens were procured from a red chert, with scabrous surface, having silicified shells distributed throughout its substance or projecting from its surface. The chert is deeply imbedded in the nodular basalt, from which it projects in some places several feet. The finest specimens of Unio occur in a beautiful gray chert imbedded in the basalt, or resting immediately on it, the under surface being plain and smooth, while the upper is rough, from portions of the large shells which project from it. On breaking up one of these masses it was found to contain entire Unios, many of them having the valves connected and closed, or partially open, the interior being filled with the same chert spotted with fragments of shells, minute univalves, and fine specimens of the two species of Cypris, which occur so abundantly. Some parts of the rock exhibit a mixture of sand, clay, and fragments of shells, of very moderate hardness; but the greater portion consists of chert, the materials of which are occasionally arranged in a beautiful, light blue, enamel-like substance, around irregular cavities containing crystals of purple quartz. Some portions also exhibit a minute vesicular structure; and the whole appearance of this beautiful rock forcibly impresses the mind with the conviction that it owes its present appearance to the action of the great basaltic eruption which has enveloped it and the organic remains. The greater number of the shells are converted into chert, but a few retain their original structure; and in some instances the calcareous matter has been converted into crystals of calcareous spar. Many internal casts of entire shells are found in the substance of the rock, to which they are united at a few points only, a greater or less space being left unoccupied; in others the entire shell is converted into siliceous matter, retaining the appearance, even of the ligaments, unaltered; and, fortunately, in a few cases the hinge and teeth are excellently preserved.

Numerous fragments of shelly rock, differing much in appearance, lay scattered about over the table-land, consisting partly of a fine blood-red chert, like that above described, and containing the same shells. The gray chert was more sparingly disturbed, and the Unios did not occur in the other fragments. Some of them, composed of a tough white clayey stone, so soft as to soil the fingers, contained Physæ, Paludinae, and Limnae, mostly converted into calcedony, but others also retained their original structure, and effervesced with acids. Portions of charred vegetable matter, resembling small fragments of grasses and reeds, occurred in these and the

harder cherts. Other specimens are composed of a greenish blue crystalline mass, resembling an ore of copper (but it is of low specific gravity, and contains no trace of that metal), and the shells contained in them are converted into the most beautiful crystalline quartz, retaining the form of every convolution of the *Physæ* and *Paludinae*. The cells of this stone are often coated with fine silky crystals. Masses of a hard coarse chert consist almost entirely of *Gyrogonites*, but contain many of the same *Physæ* and *Paludinae*. This rock appears to have formed beds of about half a foot in thickness; but it was not discovered *in situ*. A stratified rock was, however, found in the neighbourhood, resembling some specimens of the argillaceous limestone of the diamond districts, but consisting of a compact whitish chert, which contained *Paludinae* and the finest specimens of *Gyrogonites*. (Plate I., fig. 1.) Night prevented the connexions of this rock from being determined: the strata were, however, ascertained to be of considerable extent, and to be much buried in the soil; there were also numerous fragments of siliceous rock, partly converted into a black bituminous flint, or a coarse quartzose rock, partially altered into calcedony, by which most of the shells were also replaced.

The masses of red chert protruding from the basalt contained, besides the Testacea, small portions of silicified wood, and what I consider to be the fragment of a bone and of the tooth of a mammiferous animal. The specimens, however, are too imperfect to admit of any certainty as to what they really are; but it is not unlikely that such remains should occur, and I therefore do not suppress what may lead to a more successful inquiry.

On descending towards Hutnoor, granite presenting a concentric, ligniform surface, from the unequal decomposition of the quartz and felspar, occurs at a short distance from the fossils.* With this exception the basalt continues of the same character as before, and fragments of red or deep black chert, containing *Paludinae*, are found in the beds of torrents; and at Hutnoor they occur in the trap. There is much calcareous matter mixed with the soil, or collected in nodules, and it appears to be derived from the lime contained in the basalt, or between its laminæ. On the pioneers attached to our camp penetrating, at Elchoda, through some strata of tabular basalt to obtain water for the troops, seams of a pure white pulverulent lime were found between the layers.† At Hutnoor fragments of a compact blue limestone, not to be distinguished from that of the diamond districts, were collected, and the rock to which they belonged was found in the descent from the first of the three principal terraces by which the road leads to the northern base of the hills. The strata were much inclined and broken, but the forest was so thick that I could not trace them for any distance. After descending to the second terrace the surface rock suddenly changes to a white, horizontally-stratified limestone, almost entirely composed of large bivalve shells, the edges of which decomposing more slowly than the cement, the natives have applied to it a name signifying impressions made in clay by the feet of sheep. The thickness of the bed in one place, where it is intersected by a torrent, is 12 feet, and it rests directly on red granite. A great spur, from the upper part of the mountain, extends across the terrace, rising precipitously above the fossiliferous limestone, a few hundred yards from the spot where it rests on granite, and has buried the continuation of the stratum under an accumulation of basaltic *débris*. Where the limestone becomes concealed in the basalt, a friable, grey cellular mass, resembling ashes, occurs, apparently imbedded in both these rocks. The fossils are composed of granular limestone, the matrix consisting of calcareous matter mixed with the ash-like substance, and small fragments of granite. Some of the shells are of great size, but they are ill preserved, and I found only one specimen with the valves united. These shells I erroneously considered to be marine (principally from the appearance of those represented in Plate II., figs. 4 to 8, and some of the large flattened specimens). Mr. Lonsdale, however, who had the kindness to examine some of them, considered their general character to be that of fresh-water species. I had previously detected, in a fragment of a

* A similar appearance has been observed at the foot of the Nirmal pass, at the iron mines of Deemdoortee, and in Bundicund.

† This same was observed in Bundicund by Captain Franklin (Asiatic Researches, vol. xviii.)

compact argillo-calcareous stone found at the bottom of the little cliff where the granite is seen to underlie the fossils, a number of very perfect *Melania*; I therefore re-examined the different specimens, and detected in them fragments of the same kind as those in the limestone; and Mr. Sowerby has since been able to extract from the latter specimens sufficiently distinct to be identified with the *Unio Deccanensis* (Pl. II., figs. 4 to 10) found in the chert at Munnoor, and another species (*Unio? tumida*, figs. 11 and 12) not yet discovered elsewhere. No other fossils were found in this locality.

When it is considered that the accumulation of fresh-water shells occurs on the precipitous descent of a mountain range, ascended with much difficulty by travellers, it will be evident that the aspect of the country has been entirely altered since these animals lived.

Towards the foot of the pass the rock changes from the nodular basalt to amygdaloid; and, near its junction with the granite, masses of greenstone porphyry, with large crystals of felspar, occur. The granite then reappears, protruding in rounded masses through the soil of the level country around Yedlabad. The bed of a stream near that town is strewn with fragments of blue limestone and schist, resembling those of the basins of the Pennar and Kistnah; and higher up the stream a fine white quartzose sandstone, having a few imbedded fragments of quartz, is found *in situ*. It dips at a slight angle to the south-west.^o The surrounding country is covered by a deep basaltic soil, so that the rock on which it rests could not be discovered; but the argillaceous limestone, passing, in its upper strata, into a greenish or red schist, is traversed by a stream a few miles to the north. Short ranges of trap hills, some of them at nearly right angles to the Sichel mountains, occur to the north-east; and beyond them an extensive tract of sandstone has been traced for a great distance along the Wurdah.

At Zynad argillaceous limestone appears on the surface for several miles, and agrees in every particular with the compact marbles of the diamond districts of the Pennar and Kistnah. The strata sometimes dip at an angle of 40 degrees, but they are in general nearly horizontal, the edges of the layers being disposed in steps on the slopes of gently-rising grounds. Rock crystal and calcareous spar are distributed in thin seams between the strata, as well as through the substance of the rock; and along the vertical partings of the strata there are rows of circular cavities, which are generally empty, but are sometimes filled with calcareous concretions. In a few instances these hollows occur out of the line of fissure, and entirely penetrate the stratum, being connected below with horizontal channels of the same kind. On the surface, calc-tuff (Kunkur) is very abundant, often adhering to the strata, or investing fragments of the rock.

The same appearances are seen near the diamond mines of Chinoor, on the Pennar, where the strata are much disturbed, and basaltic pebbles cover the banks. The only explanation which can be offered of the phenomena in both those distant localities is that the extrication of gaseous fluids and water from below had taken place in the lines of fissure, and had dissolved a portion of the limestone, which was again deposited in the great accumulation of tuff and conglomerate so remarkable in these places. That they at all indicate the "argillaceous limestone" to be of fresh-water origin could never be imagined by any who had seen the rock in question, which, wherever it occurs in the south of India, is entirely devoid of fossils.† This supposition is confirmed by the phenomena exhibited at the hot springs of Urjunah, which rise in the same rock, and where bubbles of carbonic acid are extricated through round holes in the mud covering the bottom of the rivulet, the water of which being loaded with lime, a calcareous tuff is rapidly deposited.

A gentle elevation extending three miles to the east of the village of Zynad is composed of this limestone, and it rises very gradually towards a small conical

^o Minute undulations, resembling those formed by the ripple of running water, were observed on this sandstone, in a seam not quite parallel to the line of stratification.

† This assertion may, in the progress of knowledge, be found to be erroneous; but, having carefully looked for fossils during extensive journeys through districts principally composed of this rock, I doubt whether such will be the case. Fossil plants have been reported to be found near Gundycottah; but these I ascertained to be mere dendritic markings on the surface of the strata.

summit composed of coarse vesicular basalt, which has broken through and covered the limestone. A portion of this rock appears to have been displaced in a singular manner. A wall of perfectly vertical stratification about three feet thick projects nearly as much from the general surface, and consists internally of the same limestone as that which it appears to cut at right angles, while externally it is singularly irregular and altered, being converted into a beautifully crystalline limestone, with quartz minerals.

To the north of this place as far as the Payne-Gunga river the country is flat, covered with basaltic soil or rock connected with insulated trap hills and intermixed with jaspers resembling those so common near Bangnapilly, and perhaps derived from the argillo-calcareous schists occasionally seen in the watercourses. The pebbles of the Payne-Gunga consist mostly of calcedonies of a reddish colour, and of argillaceous limestone, and they are in many places consolidated into a conglomerate by the calcareous matter with which all the waters of the district abound. In a layer of this conglomerate, projecting from the alluvial soil of which the bank is composed, numerous recent shells are imbedded. The limestone and its incumbent schists are seen north of the river, and they abound in springs and streams loaded with lime, which is deposited as calcareous tuff in the watercourses. Masses of the same substance, several feet in height, project from fissures in the rock, or compose conical eminences of white "Kunkur," which are scattered over the black basaltic plains.

From Lonar the basaltic district extends to the south as far as Beder; to the west, 200 miles to Bombay; and northward, to the banks of the Nerbudda, near the ancient cities of Indoor and Mhysir, reported to have been buried at a remote period under volcanic eruptions. To the east the great basaltic country of Berar extends as far as Nagpoor; and the Sichel range passes in a S. E. by E. direction to the confluence of the Wurdah and Godavery, and towards the Eastern Ghats. Hot springs and streams, loaded with carbonate of lime, occur along the line of elevation of these mountains at Mahoor, Urjunah, Kair, Byorah, and at Badrachelum, a short distance above the pass through which the Godavery reaches the alluvial plains of the coast. The spring of Byorah is surrounded by sandstone and limestone rocks, and carbonic acid escapes with the water, which has a temperature of 110° and holds lime in solution.* That of Badrachelum, which rises in the sandy bed of the Godavery, has a temperature of 140°, and contains sulphuretted hydrogen, also sulphates and muriates of soda and lime. A sandstone resembling the cement of the Bangnapilly diamond breccia and the rock of Won protrudes from the sandy bed of the river near the spring; and granite, basalt, and a red schist resembling that so common in the diamond districts occur in the neighbourhood; diamonds also are occasionally found. Other hot springs are reported to exist in this line of elevation; but that wild and little-known country, far removed from the residence of any European, must long remain in a great measure unexplored.

The facts stated in the preceding pages prove that the basaltic rocks, by which so much of Western and Central India is covered, are more recent than the sandstone and argillaceous limestone of the basins of the Pennar, Kistnah, Godavery, and of the mountains south of the Nerbudda; and that, notwithstanding the frequent occurrence of these rocks in a horizontal position, they have been subjected to violent operations, which have in many instances elevated the strata and remarkably altered the rocks themselves. It also appears, from observations made on the borders of the trap districts, and in other places where the primary rocks and the sandstones and limestones are not entirely concealed, that the basalt has burst forth from numerous fractures in these formations, probably simultaneously, although often forming insulated masses. It is possible that more than one period of eruptive violence may have occurred between the era of the formation of the greenstone dikes, so common in the granitic districts, and the conclusion of the eruptions by which the fossils were entombed; but at present there is no proof of such having been the case; and all observers have considered

the eruptions to have been contemporaneous—an opinion, to a certain extent, confirmed by the occurrence of the same fossils in very distant localities.

The sandstone and argillaceous limestone I have myself traced, from the neighbourhood of Nagpoor nearly to the junction of the Wurdah with the Godavery, bearing the same characters as in the vicinity of the fossil beds; and I have collected specimens of the same rocks at various places between this and Badrachellum and the diamond mines in the neighbourhood of the Kistnah. This tract for 250 miles is nearly an uninterrupted forest, and presents many difficulties in the investigation of its geological structure. Trap rocks and basaltic soil occur in many parts of the course of the Godavery, and granite of the usual character is occasionally met with. Dr. Voysey, who investigated great part of it, with his usual accuracy describes the sandstone as constituting a range of mountains 60 miles in extent, to the north-west of Badrachellum; and the surface rock 20 miles south of Ellore (near the alluvial plains of the Kistnah and the diamond mines), also at Mungapett, on the Godavery, where I found silicified wood resembling that of Pondicherry.* Fossil wood was also seen by Mr. Geddes strewn over the country N.W. of this point towards the junction with the Wurdah. Where the sandstone of the Godavery meets the granite to the west Dr. Voysey states that it can hardly be recognized as the same rock, consisting of a conglomerate containing quartz, felspar, and rounded pieces of granite resembling that of the Eastern Ghats. The argillaceous limestone occurs in the same district, and is more widely distributed than Dr. Voysey supposed. He found it at an elevation of 2,600 feet above the sea, and exhibiting marks of great disturbance, dipping to the S. E., and at the summits of the hills intermixed with quartz rock.† Dr. Voysey considers these formations at the lower part of the Godavery to be the same as those of the Kistnah and Pennar; and in this opinion I fully coincide, although I have found the continuity of the sandstone and argillaceous limestone to be interrupted by a narrow band of granite extending from the delta of the Kistnah to the granitic platform of the Deccan. Some of the hills, however, have caps of sandstone. In the present state of our knowledge it is difficult to form any correct notion as to the dip and direction of these rocks. Indications of derangement and elevation by the granite are, however, sufficiently apparent. . . .

Inferences respecting the Fresh-water Fossils.

On the evidence on this subject afforded by the fossils imbedded in or covered by the basalt I shall now make a few observations. For the descriptions of the shells I am indebted to Mr. J. De Carle Sowerby.‡

These fossils all belong to fresh-water genera, and to species which have not yet been discovered recent. I have not been able to obtain the seeds of Asiatic *Charæ*, nor the valves of any *Cypris* inhabiting the fresh waters of India. The shells, however, all differ from those inhabiting the rivers of the neighbouring country, as far as Mr. Sowerby and myself could judge by comparing them with a collection of recent shells which I made during a residence of several years at Nagpoor; nor do I think it possible that any of the larger shells could have escaped my notice did they still inhabit the northern branches of the Godavery. Colonel Sykes, also, had the kindness to allow me to examine a collection of recent shells made by him near the Western Ghats, consisting of the same species as those of the Berar valley, and they are, of course, different from the fossils. I also failed to detect amongst them any of the shells contained in a large collection of recent land and fresh-water Testacea from Bengal presented to the Zoological Society by Mr. Benson. It may therefore be inferred that the fossils do not belong to recent species.

* Journal of the Asiatic Society, vol. ii., p. 402. The tenor of Dr. Voysey's observations in this place seem to show that he considered the "clay slate," in which he included the sandstone, to belong to the same formation as the limestone, a conclusion I had formed before meeting with his paper, and which has not been expressly stated in any of his writings yet given to the public.

† The structure of the wood is beautifully preserved: it is coniferous. June 24th, 1839.

‡ See Plates 2 and 3, and Description.

Gyrogonites have not yet been observed in any deposit more ancient than the fresh-water formations of the basin of Paris. Cyprides occur in the tertiary strata, and in the Weald clay below the chalk, and perhaps in the Birdiehouse limestone of the Edinburgh coal-field. Of the other five genera discovered in these fossil beds, two have hitherto been found only recent or in tertiary deposits, viz., *Limnea* and *Physa*; and the best characterized specimens of some of the others are referable to the same period. It is therefore extremely probable that the basalt in which these fossils are imbedded, and which has altered the rocks in which they occur, belongs to the tertiary epoch; but to which period I fear we have not the means of forming any decided opinion. Though none of the species are recent yet they are too few and in too ruinous a state to admit of any general conclusions; although, from the very great number of individuals collected in various localities, without adding any fresh species, it is probable that nearly the whole which exist have been procured. But when the vast extent of the country occupied by the basalt is considered, and that a still greater tract was broken up or disturbed at the time of its eruption, it will not appear improbable that a rule founded on the disappearance of marine shells in districts exposed to no such extensive causes of destruction of animal life should not apply.

In the preceding pages I have described the fossils discovered by Mr. Geddes and myself in various parts of the Sichel mountains, and the Valley of Berar, extending through the great trap district for 140 miles; and I shall now shortly refer to other localities at great distances from each other, where the same fossils have been found in similar rocks buried under the basalt.

I shall conclude this paper by one or two remarks on the relative age of the Laterite and Trap. Dr. Babington* and Dr. Christie had observed this rock, both below and above the ghats in the latitudes of Seringapatam and Goa, and I have traced it in the deep and narrow valleys of Coorg, at various heights, from the level of the sea to several thousand feet above it; but as in all those places it rests on syenite or other granitic rocks, from the decomposition of which, *in situ*, there is much reason to suppose that this remarkable formation is derived, no inference as to its age can be drawn from these facts. At Colter, however, and other places on the coast of the great basaltic district, it rests on the basalt, forming the summits of the hills, or an external layer over the trap which constitutes the body of the hill. This superposition is exhibited in ravines passing through the laterite, or where that rock has thinned off so much that it can be separated from the basalt below, which has most commonly a stratified arrangement, often highly inclined and parallel to the precipitous face of the hill. It has also been observed above the ghats, and in the table-land of the Deckan, between the Godavery and Manjera rivers, resting on basalt; it is therefore probable that the trap has been protruded from below, since the laterite assumed its present form. It would be improper, in this place, to enter into any details regarding a formation which extends over much of the Malay peninsula, Ceylon, the coasts of Coromandel and Malabar, and Central India. In different portions of these vast countries several varieties of this rock are met with, well deserving of attention, yet its general character and composition is the same over 30 degrees of longitude and 20 of latitude, and nowhere is any proof to be found of its being of volcanic origin,† or the equivalent of certain European rocks, as supposed by Elie de Beaumont. Under the name of laterite, however, very different rocks have been included; such as the ferruginous clays and sandy beds underlying the alluvium of the Irawady, near Rangoon, and a ferruginous conglomerate now forming in many places from decomposed and reconsolidated laterite or syenite, and containing fragments of granite, and occasionally enveloping a recent land shell.

Besides these, a rock, apparently of igneous origin, has been occasionally confounded with laterite, and in the diamond districts is known to the natives by the same name as is applied to that rock in the Mysore. The thinner strata of the

* Geol. Trans., 1st Series, vol. v., p. 329.

† Calder, Asiatic Researches, vol. xviii.; Conybeare, Report to British Association.

diamond sandstone of the Pennar have been observed to be bent in a remarkable manner by the intrusion of this rock ; and in other instances it had apparently escaped in a semifluid state between the joints of the larger tables, carrying with it fragments of the sandstone, whose angles are so well defined that I thought I could trace the very spot from which they had been broken off. Notwithstanding these appearances, the character of the rock differed so much from any varieties of basalt I had then seen in India that I hesitated about referring it to the trap family till I had seen varieties of a red wackè much resembling it constituting part of the basaltic mountains of the island of Salsette. It is in a substance of this kind interstratified with sandstone that Tavernier describes the diamond mines of Beejapoor to have been worked in former times. The transitory nature of the political divisions of this part of India, and the decay or desertion of many towns and villages, have hitherto prevented the identification of these mines ; but enough has been said to show the importance of caution in reasoning on individual facts relative to one of the most singular and extensive formations anywhere to be found.

EXTRACTS FROM DR. VOYSEY'S PRIVATE JOURNAL WHEN ATTACHED TO THE
TRIGONOMETRICAL SURVEY IN SOUTHERN AND CENTRAL INDIA.*

From Secunderabad to Beeder.

Saturday, 9th January 1819.—I quitted the cantonment, Secunderabad, at three o'clock. I met Major Hopkinson at the bund of the tank, who was making or repairing the road destroyed by the overflow of last season ; he was in the act of directing the removal of a large block of the greenstone. He told me that the vein was continued beyond the tank in a northerly direction, but that it could not be traced further south ; also that the large vein crossing the road to the Residency was continued in the same direction to Hyantnuggur, twelve miles distant. He mentioned the singular discovery of cairns and Druidical circles by W. P. of the Artillery, one of which had been opened lately of a curious formation, and several bones had been found in it. The granite continues to wear exactly the same aspect here and on the road we have travelled from Secunderabad, the loggan stones and tors being very numerous.

Sunday, 10th January 1819.—Halted the whole day at Chinchawalee ka Durga, and in the afternoon visited the tombs of Golconda,—large cupolas supported on square pilasters of granite of an extraordinary length ; some of them were at least 20 feet high, of solid stone. The tomb is in the centre of the hall, formed by the cupola, and is made of greenstone. Of this stone we discovered a vein about 10 feet wide and running east by south, the same direction as those in Hyderabad ; the sides were composed of granite, intermixed with the greenstone, which affected the form of rhomboidal blocks, and was penetrated by quartz veins. From the top of one of the tombs we had a very fine view of the fort of Golconda, which is not so strong as it is supposed to be. Granite. No diamonds. The characteristics of this country, and striking ones they are : loggan stones and tors of the most grotesque appearance, generally smaller than their support or pediment, and in many instances piled together by threes ; their origin I shall hereafter speak of :—tanks of large dimensions, varying from twenty to thirty miles in circumference, formed by dividing the bed of a natural lake formed during the rains into two parts by a large mound or bund through which several locks suffer the water to escape, as it is wanted to fertilize the other half of the bed, converted into paddy fields ;—the trap or greenstone running twenty miles E. by S., of which I have seen three miles ; this stone is used for lingams and gods by the Hindus and for tombs by the Mahomedans.

Monday, 11th January 1819.—We travelled through a country similar in all respects to the one we had quitted, except that the granite tors assumed a still more grotesque appearance as we advanced, until within two miles of Puttuncheroo,

* Reprinted from the Journal of the Asiatic Society of Bengal, vol. xix., 1850, p. 201 et seq.

when the granite suddenly ceased to be visible, and a fine plain of alluvial soil was spread out before us, covered with trees and bearing the strongest proof of great capability for cultivation.

Tuesday, 12th January 1819.—The country between Puttuncheroo and Begumpett, on which the village is built, consisted of the same fertile soil and plain, bounded on the east and west by low granite hills still preserving their peculiar features, when, on our arrival at Begumpett, the granite suddenly reappeared in our path and formed the hill on which it stands. On descending we found a stiff bluish clay, which continued to the place of our encampment, Susdanuggur, on the borders of a tank.

Wednesday, 13th January 1819.—We travelled through the same plain; low granite hills making their appearance until we nearly reached Wondole, when quartz rock, forming considerable elevations, running in N. and S. direction; this rock continued for a mile and a half, and then disappeared two or three hundred yards from Jogypett, the place of our encampment. There the rock rises highest, perhaps 50 feet. The quartz appears to have been once covered by an iron clay deposit, from the quantity of pisiform iron ore found on it, and from that formation being found in the ravines and rents at the sides and bottom of the hills.

Thursday, 14th January 1819.—We passed through Jogypett, and crossed a plain about seven miles in breadth, between the quartz rock and the hill on which Colonel Hampton's flag was fixed; the sides were covered with angular and rounded masses of a rapidly decomposing greenstone or hornblende rock, on breaking which the grey colour of the decomposing surface was found extending into the black crystalline rock for about two lines. The soil formed by its decomposition was very rich, and retentive of moisture. The form of the surrounding elevations was nearly similar, and had nearly the same N. and S. direction. The stone had no perceptible effect on the magnet.

Monday, 18th January 1819.—We quitted Tadmanoor for Jogypett. I had a better opportunity of observing the scattered lumps and masses of granite which are strewed without order on the plain at the foot of the quartz rock. I observed no difference in its structure from that of Hyderabad. On descending the hill I passed, just before the sun rose, through a stratum of air in which the evaporation was rapidly going on, producing a very cold sensation. When I came to the bottom, as I had gone faster than to allow the inferior stratum to be affected by the same cause, the warmth was very agreeable, but, as I could go no lower, it speedily became cold as before, until the sun rose and counteracted the effect of the evaporation. I forgot to observe that the quartz rock is crystallized in rhombs, some of the angles of which are very perfect.

Tuesday (Mungul), 19th January 1819.—We crossed the quartz rock, which is not above three hundred yards in breadth, and on descending into the plain watered by the large tank of Jogypett soon met with lumps and masses of granite, which gradually increased to the river Manjira, of which it formed the banks. On crossing the river, now about its medium height, we observed with surprise veins of white granite passing through the syenitic granite which forms its banks. The rock containing these veins is much more susceptible of decomposition, from the hornblende which it contains, than the veins of red and white granite, and the appearance produced was like a fretwork when the broad surface of the rock was exposed; when an edge was left to the action of the atmosphere it was in small diagonal ridges.

This formation appeared confined to a space of a few hundred yards only on the right bank of the river.

It is worthy of remark that this river, after we crossed it at Begumpett, takes a considerable turn to the N., and that its bed no longer contains calcedonies, there found in it. The mud, however, is the same, and appears to be that rising from the decomposition of the trap rock of Tadmanoor and elsewhere. After passing some elevated minor granitic hills we pitched our tents on the borders of a lake at the foot of the station, Suldapoorum.

Wednesday, 20th January 1819.—The mixture of granite and syenitic granite

extends to this place, as I observed masses of the syenitic granite imbedded in the former near my door; it reminds me of the same appearance at Teeperty, near Neelgondah. As I have specimens, I shall have an opportunity of comparing them.

Thursday, 21st January 1819.—About halfway up the blocks of granite disappeared, and the paths presented the decomposing trap rock of nearly the same nature with that of Tadmanoor hill; its decomposition forms the same rich soil as on that hill; I found amongst it specimens of a substance intermediate between heliotrope and hornstone. From the top I counted thirty-three lakes, and should have counted more had the horizon been clear; the hill is not above two hundred feet in height; my barometer fell $\frac{1}{8}$ inch. The neighbouring mountains were slightly elevated above us, and their direction and form nearly that of the one we were on, N. and S., and round-backed, with two or three slightly conical and more elevated summits in the range; in one instance a range of low hills appeared to cross diagonally: indeed the direction of all was very indistinct, and most commonly curvilinear.

Friday, 22nd January 1819.—For several miles after quitting Suld-poorum I passed through a beautiful forest of teak, mango, *Ficus indica*, tamarind, and other fine trees and shrubs mostly leguminous; the soil was partly granite and partly decomposing greenstone, but wherever rocks were visible they were invariably granitic. At a small village situated on an immense divided mass of granite a trap vein (primitive greenstone) crossed my road, running E. by S.; another about two miles further became visible, of larger dimensions, and was lost in the jungle. In a short time we were surrounded by granitic rocks with the same features which distinguish those of Hyderabad—huge masses with a concentric lamellar structure, loggan stones, tors, &c., but with a large quantity of detritus at the feet.

In the alluvium at the foot of the pass to Chittial was found a large breccia containing handsome specimens of amethyst quartz accompanied by quartz and cemented together by a siliceous sand strongly impregnated with iron.

Sunday, 24th January 1819.—I gained the top of the hill after breakfast, and on my way found a considerable quantity of earthy brown and red ironstone lying scattered in the ravines and in the spaces between the granite rocks. I had no means of judging whether it formerly belonged to any formation such as the iron clay, but it certainly resembled that found in it.

Monday, 25th January 1819.—The ranges of hills appear to run principally N. and S. from to the east of north. As I descended I found a substance resembling calc tuff, in quartz, in a ravine lying on the surface, and apparently brought down by the rain from higher ground. I rode to Maidurh and round the hill on which the fort is seated; it resembles very much that of Golcondah; I passed a river running from west to east, and some strange tors and loggan stones.

Tuesday, 26th January 1819.—The road lay this day through a tolerably rich country, whose soil was of the black argillaceous kind arising from the decomposition of the transition trap, although on advancing, without apparently changing our level, we met with the old granitic sandy soil, which is that of Ringumpett; and in its neighbourhood, where our tents are pitched, is a large-grained granite with very handsome bluish grey felspar. I forgot to observe that the forms of the granitic rocks were more varied than I had yet seen them, forming every description of loggan stone and tors that can be conceived.

Wednesday, 27th January 1819.—The soil alternated from the black cotton soil, as it is called, to the sandy granitic, and the only rocks we saw in this extensive plain were granitic in small lumps and masses. As we approached the river Manjira they were profusely spread on its banks and in the middle of its stream; here and there in its bed we observed small pieces of calcedony and cornelian. About three miles from our station, Ringumpett, I observed a very small-grained reddish granite, much used in the buildings of the village.

Our station was on the transition greenstone, differing in no respect from that of Tadmanoor,—the same black thirsty soil covered with the *Poa cynosuroides* (Kusa grass), also the *Semecarpus anacardium* and *Butea frondosa*. At a lower part of the hill due east from the station I observed in a stone, different from any

other I had previously seen, several turritulites and bivalves. The stone is of a bluish grey colour, alternating from that to a blackish grey, containing transparent spots of stalactitic silica; its fracture is for the most part conchoidal, even with sharp edges it is hard, easily frangible, and specific gravity about 2.0. I have since found, in another part of the hill nearly due north from the station, large nodules of corroded and vesicular flint, and masses of the former stone passing into flint; some of the masses were a foot and a half in diameter. I also, in nearly the same direction from the station, at the distance of half a mile, saw the transition trap laid bare; it affected the columnar form, and was everywhere split and divided, without any appearance of stratification; in some cases I found on the surface concentric layers rapidly decomposing, enabling me to remove two of its coats.

Friday, 29th January 1819.—I went this day to the southward and westward, as I had previously been to the other quarters of the station. The cultivation has evidently extended all over the hill, fully accounting for the smallness of the shrubs and trees on it; ravines proceed in every direction from the top, forming in the rainy season large torrents, supplying the Manjira with the mud which it then deposits on its banks. In the lower grounds I saw wheat, cotton, ricinus, and linseed in cultivation and in flourishing crops. We had scarcely arrived at the bottom of the hill and about half a mile from the first village when the granite appeared in an abrupt part of the road; near its first appearance we found precisely the same mixture which I have twice before noticed, viz., at the Manjira and Repurlah; near it was a bed of meerschaum. The granite, with its customary attendants in the shape of loggan stones and tors, soon succeeded, with here and there masses of greenstone rolled and scattered without order. The jungle prevented me from tracing their origin. In the evening I visited the fort, and saw at least a radius of thirty miles of the surrounding country; we were still in the vast plain, but now more broken in upon and diversified with rocks of granite. This is now redder, and contains veins of a still redder granite. It has also less of the appearance of concentric layers, and has a more stratified look. The fort is miserably dilapidated; we were admitted without the least ceremony. The country appears destitute of springs, and depends entirely on the rainy season and a few rivers for its supply of water.

Sunday, 31st January 1819.—In the evening I observed in the banks of a small nulla, dry in most parts, and containing only a muddy water tasteless of any saline impregnation, an incrustation of carbonate of potash, from and apparently by the decomposition of the felspar of the alluvial^{*} granite of which its sides were composed, acidified by the atmosphere.

Monday, 1st February 1819.—A short march from Sauhrampett to Bachapilly; the granite continues to be red and of a small grain; about halfway a vein of greenstone passed the road. After breakfast I ascended the hill, which has a fine prospect in a southerly view bounded by a range of hills running east and west; their outline was rather different from those I have been amongst for some time past, being more peaked; the Manjira, taking a N.W. direction, is in the plain between. The mountain, or rather hill, of Bachapilly is almost insulated, and may be seen on all sides at several miles' distance, although not 200 feet in height. It consists almost entirely of granite in large irregular masses piled one on the other without order.

Tuesday, 2nd February 1819.—I left Bachapilly this morning for the river Manjira, its nearest approach being about four miles E.S.E. of the hill. The road lay through jungle, with heaps of granite at intervals in hillocks, and irregularly strewn over the ground; two miles from the encampment the road was crossed by a primitive greenstone vein taking its usual direction. On arriving at the river I found its banks and bed lined and filled with granite; on the right bank the black alluvium was thirty feet above the level, and perfectly horizontal on the top; the bed consisted of granite sand, a few pieces of calcedony not very frequent, and a few shells of the same species I had previously found on crossing it first.

I should have observed that I saw magnetic iron sand mixed with the mud

* So in original, *diluvial* is probably intended.—Eds.

on the bank of the river ; also, in a stream which emptied itself into the river, a trace of the efflorescence of carbonate of potash. Our encampment is not above the level of the banks of the river, there being no difference in the barometer observed at each place.

Wednesday, 3rd February 1819.—The hills have no regular course or direction, one of the proofs of which is that the river runs in the midst of them.

Thursday, 4th February 1819.—I saw also near the village of Bachapilly some singular veins of granite rising through a greenstone or syenitic greenstone, very similar to what I had before observed on the banks of the Manjira : the veins, having resisted decomposition much better than the containing rock, remained projecting two feet in some instances. It is remarkable that a shift of the veins had taken place : the granite vein was sometimes white, sometimes red, like that at the Manjira ; the course of what we could discern of this formation, which lay in a field formerly in cultivation and over which the jungle was spreading, was E. by S. Visited the Bear's Rock, a granitic elevation of thirty feet, distant E. by S. from the station about 400 yards. Its base consists of a large grain containing red felspar, white compact ditto, and hornblende, forming altogether a beautiful stone ; through this mass a vein of syenitic greenstone, differing in width from three feet to a few inches, runs for about fifty feet ; this is again crossed by veins of a finer granite nearly resembling that higher up, which is in large blocks apparently placed without order, but an eye accustomed to these rocky elevations, almost peculiar to this country, discerns in these masses the remains of a concentric coat of granite. The remains of strata filled with these granitic veins are very common between.

Friday, 5th February 1819.—On our road through the plain the same kind of granite to which we had been so long accustomed was frequently seen in irregular masses. Two miles from Bachapilly we crossed a small nulla running in the direction of the Manjira. Immediately before entering Polelum a large deposit of quartz rock running E. and W. about half a mile, resting on granite ; it was of the same description as that at Jogypett. Our road then lay through a plain of black cotton soil, when, after a tedious journey through a thick jungle, in which nothing was to be seen excepting masses of granite, and now and then lumps of greenstone, we began to ascend a hill composed of greenstone, having the same characteristics as that of Tadmanoor, containing foliated zeolite in abundance and calcedony lying loose in the ravines, and on its surface high Kusa grass (*Poa cynosuroides*).

Sunday, 7th February 1819.—I quitted the hill with Everest early to go to Kowlass. We descended one of the ravines so common on these hills and soon came to the usual kind of granite, but could not observe the junction of the strata ; we again began to ascend by a very long road, until the junction between the trap and granite was very distinct, and on looking around us each of the numerous elevations in sight appeared covered with the same kind of trap resting on granite. It is worthy to remark that many trees on the hill are destitute of leaves, whereas in the valleys and ravines they appear to preserve them late in the season. We now began to ascend the hill on which the fort of Kowlass stands, in which there is nothing externally different from that of Medenkah Golcondah ; the fort and basis of the hill are of granite, both red large-grained, and grey small-grained ; on its northern side and near the summit a very considerable vein of greenstone crosses the path, running E.S.E. and W.N.W. ; its northern or upper edge is well defined and consists of greenstone porphyry, containing both crystals of felspar and smoky quartz in the upper part of the vein, but lower down the hill the stone is a coarse greenstone very subject to decomposition, which takes place in a concentric manner and very similar to that of the hill of Boorgapilly, which is more secondary and contains zeolites ; its lower edge is less well defined, and, instead of being bound by the granite as on the other side, it is spread for several yards over the granite, lying directly upon it ; the breadth of the whole is from about 40 to 50 feet ; its length we had it not in our power to ascertain. After my return I visited the village of Boorgapilly, the environs of which consist of a very rich soil formed by the decomposition of the trap ; in which soil, where it has not been disturbed, the zeolite has been recrystallized in silvery plates.

Wednesday, 10th February 1819.—We crossed a nulla after descending the hill of Kowlass, running east to Manjira. We passed through a large plain of the black cotton soil and arrived at Beechicondah, through a pass of granite rocks in which were many loggan stones, and angles were taken. I reduced the temperature of Fahrenheit from 88° to 59° at half-past three o'clock P.M. The hill or hills are composed of red syenitic granite, very similar to that at Bachapilly, though of a smaller grain. I had an opportunity of observing the communication between this plain and the one which it follows. The whole is flooded during the rainy season, and affords an easy explanation of the universal appearance of the black cotton soil except in the neighbourhood of those hills which are covered by granite alone.

We passed several little rivers on their way eastward to join the Manjira. An explanation of the cause of the total absence of trap on some of the hills must still be sought for.

Thursday, 11th February 1819.—Through the continuation of the plain to which Beechicondah is the pass. For some distance granitic sandy soil, when a river produced its usual accompaniment—the black cotton soil of the trap. We passed Mudnoor, at the back of which, to the N.E., the granite commences, surmounted by the trap. As we crossed the fields and ascended the hills of Bhuktahpoor, calcedony with green earth, heliotrope, amygdaloid wacke, with zeolite, stilbite, and carbonate of lime coloured green, were found in great abundance and very fine specimens.

The western side of the hill on which we are encamped is composed of the crystalline transition greenstone, but in the valleys and towards the eastern side it consists of wacke enclosing large specimens of foliated zeolite or stilbite with amygdaloidal pieces of green earth, which has given its colour to carbonate of lime also contained in it. The wacke is of a greenish grey colour, and is destitute of crystals of olivine or of basaltic hornblende.

Friday, 12th February 1819.—I visited a ravine about a mile due east of the hill, in which the trap was much water-worn. In one part it had very much the external appearance of the Rowley Rag Basalt described in Thomson's Annals, being semicolumnar. In another part it consisted of nodular concentric masses, of which the external coats were decomposed, leaving rings around a lump of more compact nature undecomposed, on others a number of concentric circles visible, of various sizes, according to the quantity of the mass decomposed.

Our servants have brought in a number of very handsome specimens of—

Wacke, contg.	Foliated zeolite.
Ditto ...	Green earth.
Ditto ...	Green carbonate of lime.
Ditto ...	Nodular mesotype, heliotrope.
Ditto with	Green earth and calcedony.
Ditto ...	Jasper ditto ditto.

Saturday, 13th February 1819.—The surrounding hills and acclivities are of two descriptions. The lowest are of granite, are rugged, consisting of masses heaped one on the other, and of loggan stones. The lower are generally east and west, level at their tops, with now and then rounded summits terminating by rather an abrupt slope, and containing valleys having the appearance of the embrasures of a fortification; I recollect seeing the above hills mentioned by Colonel Mackenzie in his Journal. The basis of all these hills is granite, reddish and of a small grain.

Sunday, 14th February 1819.—List of minerals found on the hill and in the neighbourhood of Bhuktahpoor during a residence of four days there :—

Basis of the hill, granite, of a reddish grey colour and small grain.	
Granite.	Green earth.
Greenstone, earthy, contg.	Calcedony.
Zeolite.	Quartz.
" foliated	Calcolong.
" radiated.	Striped agate.
Heliotrope.	Wacke, concentric.
Carbonate of lime.	" globular.
Wacke, amorphous.	Carbonate of lime.
" cellular.	Green earth.
Amygdaloid, contg.	Brown ditto.
Zeolite.	Calcedony.

Thursday, 18th February 1819.—We quitted Bhuktahpoor at four o'clock this morning. I had employed the three preceding days in visiting various parts of the neighbourhood. I found three streams of water descending from the hill in different directions supplied by infiltration; the temperature of one was 10° lower than that of the atmosphere, which was 88° . The wacke was not very general, and appeared only in beds of small extent, the general rock being an earthy greenstone with no crystals of any description. I found in all the sides of the streams the efflorescence of the carbonated alkali; and I am at a loss to determine whether it proceeds from the soda of the zeolite or the potash of the green earth. A dense precipitate was occasioned in water from a spring in the neighbourhood of the camp by alum in powder. I arrived at Daigloor a short time before sunrise; about a mile distant I crossed a river, the bed of which was composed of large blocks of red crystalline granite contained in a breccia composed of limestone cementing quartz and red felspar; the sand of the bed was similar to that of most other rivers that I have seen, taking their rise from the trap hills and flowing through granite country, consisting of the *débris* of those two rocks, as well as calcedonies and land shells of three sorts—buccinum, helix, and pupilla; the right bank of the river resembled exactly that at Ramaledhypett, being lofty and composed of the black cotton soil. I passed over other ranges of the trap, of low height, until our descent into the plain through which the Mulinar passes, the right bank of which is also very steep.

At Adainoor the granite forms more than one-half the height of the hill, and is covered at the top by a very compact greenstone, with crystals of felspar, and a few cavities not filled with any substance. The course of these trap hills was very distinctly seen from this point due E. and W.

Saturday, 20th February 1819.—I passed through the village of Mengoor, near which, on the banks of a small nulla, the thermometer sank to 47° just before sunrise: in its neighbourhood I also saw a bed of lithomarge lying on the alluvium, which rested, as usual, on the trap. The fields on my right and left were full of gram and corn crops; nevertheless I observed that a large quantity of land had been thrown out of cultivation. The approach to the Godavery was over waving land consisting entirely of trap and alluvium; now and then beds of amygdaloid, with green earth and wacke, were seen, and within a mile of the river small blocks of granite rising through the alluvium, so rounded that I found it impossible to bring away specimens. My visit to the rocks was first paid; I found them to consist of granite, forming the banks and bed of the river; the former were about forty feet high; of this height the granite occupied one-half, and the remainder consisted of black cotton soil; the river was shallow indeed. I crossed its deepest part, and found it vary from two to four feet in depth, its bed consisting of granitic sand mixed with a few calcedonies and agates, and, on the borders, magnetic iron sand; I did not see shells. In the crevices of the rocks I found some pieces of stilbite or radiated zeolite. The height to which the river rose two years ago was pointed out to me, it might be about thirty feet above its present level: it had washed away the corner of a wall surrounding a handsome pagoda built of black basalt; it must now, no doubt, have changed its bed materially, since tradition places the pagoda, many years ago, far from its banks. The temperature of the river at twelve o'clock was 74° , the same with the air. The basalt of which the pagoda is built is in some parts of the building finely polished. It contains olivine. The granite much resembles that found near Bachapilly at the Bear's Rock. It is porphyritic, containing large crystals of red felspar in a crystalline cement composed of quartz, compact felspar, and mica. This is the prevalent rock. A porphyritic greenstone lies near it, apparently in beds, in which the crystalline felspar is compact and of a green colour arising from green hornblende. I believe them to be the same with those of the Bear's Rock at Bachapilly. The distance from Shevalingapett hill is twelve miles, and the sole rock is the trap, sometimes basaltic, sometimes wacke on the elevations, and in the plains black cotton soil.

Monday, 22nd February 1819.—On quitting this place the thermometer stood

at 47°, and the temperature of water at half-past five o'clock A.M. was 43°; a march of seven miles brought us to Monegal,—nothing but trap, of which I am heartily tired.

Tuesday, 23rd February 1819.—The formations in this part of India differ materially from those of Europe; no chalk, no intermediate rocks between the trap and granite—the whole field of view, probably, an extent of twenty miles. The ravines of the formation are much deeper than usual.

Sunday, 27th February 1819.—Large beds of wacke began now to appear, generally lower, or at the bottom of the more elevated trap hills. On arriving near, a temple with a basaltic column, similar to one I had seen on the banks of the Godavery, struck me, and I made an attempt to draw it.

Monday, 28th February 1819.—The river-bed differed very little from that of the Mulinar. I followed it until I came to the same or a similar appearance which had before struck me—large masses of red granite, imbedded in a coarse cement of limestone, containing crystals of felspar quartz, &c. I drew a sketch of the banks, which bore a great resemblance to those of the Mulinar and Manjira. We arrived at Bhukthapoor. In the evening I visited the formation of wacke, to ascertain a fact mentioned in Thomson's Annals confirmed. It was not calcedony in wacke.

Tuesday, 1st March 1819.—The configuration of the hills was very striking, with the same form I have before noticed, fewer peaks, and lying at right angles to each other in many instances. Once or twice I observed a complete quadrangle all but one side, the opening being towards the plain.

Wednesday, 2nd March 1819.—A rugged road, from the frequent ascent and descent of the trap hills. On one of them I observed a vein of quartzose rock passing into flint running E. and W. I crossed the Scinde, the bed consisting entirely of black trap or basalt, very compact. At Dapky I lowered the temperature of Fahrenheit from 92° to 62° at sunset. I noticed a bed of lithomarge on my road.

Thursday, 3rd March 1819.—The hill on which the flag is fixed, about four miles and a half from Oudeghir, is covered with calcedony amorphous cellular with impressed crystals, and striped mammillary onyx, some imbedded in the cavities of the basalt; amongst them I found one piece of green amorphous calcedony. Five hundred yards from the tent I saw, on the side of a hill exposed by a slip, imperfect columns of basalt resembling precisely the description in Thomson's Annals,—the Rowley Rag basalt. Oudeghir (the fort) stands on one of the flat hills so frequently mentioned, surrounded on every side by the semicolumnar basalt.

Friday, 4th March 1819.—I rode through the town of Oudeghir, which is entirely built of basalt. It is the largest native town I have seen, some of the streets wide and the houses neat. My sketch of the hills to the northward of the fort, when seated on a neighbouring hill on a level with it, is the best I could take; it ill represents the singular rise, one above the other, of the basalt, the hills representing to the eye an appearance of distinct strata, which reminds me of the Isle of France; beds of carbonate of lime are very frequent. I noticed on my way some columnar basalt in a large deposit to the left of the town.

Saturday, 5th March 1819.—In the evening I rode to the right of the town, and came to something very much resembling the iron clay, not very dissimilar to that of the Cape of Good Hope.

Sunday, 6th March 1819.—In the evening I rode to the basalt; I found one column, of eight sides, more than a meter in diameter; the interstices were filled with green earth, and sometimes with the globular wacke. In some of the columns I noticed depressions and elevations for the reception of a corresponding piece, as in the Giant's Causeway and Staffa. To the westward and southward all the hills have the same appearance, and I have no doubt that they are the same formation.

Monday, 7th March 1819.—I wandered over some hills to the left of Oudeghir, where I found trap tuff, wacke, and carbonate of lime (tuffaceous) in abundance, containing crystals of zeolite, apparently of fresh formation. At the bottom semi-

columnar basalt, very black and of great specific gravity. On the right of the town there are very extensive ruins of houses and other buildings. The stream which struggles through the valley is fed by the infiltration from the hills. We passed, on our road to Doongong, over many pavements of basalt, some of them semi-columnar, with the interstices filled up by a secondary formation or ingestion of basalt; we saw also two remarkable elevations nearly north and south. In the neighbourhood of Doongong vast quantities of wacke and basalt and trap tuff, alternating frequently and without order.

Wednesday, 9th March 1819.—The land is waving as usual, with a few abrupt acclivities from two or three hundred feet in height. The trap appears less subject to decomposition, having a very thin coat of soil, and in many parts it was found impossible to drive in the tent-pegs.

Thursday, 17th March 1819.—I found on the road the basaltic trap as usual, and in the neighbourhood of a ruined building some of the iron clay in lumps, apparently brought from some distance.

Saturday, 19th March 1819.—Reached Dammergidda at sunrise, and proceeded to the Manjira, which I crossed, and encamped at Chillelah, in sight of Beeder, distant about five coss, seated on a hill. The left bank is of the black alluvium, about fifteen or twenty feet high, sometimes much less; the right bank rises to upwards of sixty feet in height forming a hill of considerable size, on which Chillelah is seated; the bank is composed of large masses of an earthy and crystalline brown limestone, very much water-worn, and containing large cavities, which appear to have been formerly filled by pieces of wacke, in some places containing large masses of flint, and in others forming a compound rock, being a cement to a rocky compound of wacke, basalt, clay, and flint. Near the upper part it has the appearance of regular stratification, and on its top wacke, easily decomposable, is spread over it. I have yet to observe it more closely. The carbonate of lime contains a small portion of alluvium.

Sunday, 20th March 1819.—I bathed twice, and collected on the bank of the river a large quantity of the iron sand, which I supposed to contain iron ore, very little of it being taken up by the magnet. I also found very fine clay. I took a ride in the evening and a sketch of the hills near Beeder.

Monday, 21st March 1819.—I took a more accurate survey of the banks of the Manjira in the neighbourhood of Chillerjee. The confusion or mixture of the two rocks is much greater than I at first imagined. I noticed, close to the present level of the river, a rock of compact basalt, which, at the distance of three or four feet, becomes wacke, passing into the admixture of carbonate of lime and lumps of wacke, and that again into the porous limestone containing clay and green earth, presenting externally large cavities out of which those substances have been washed; above the limestone is a brownish wacke on which the town is built; the height of the whole is about forty or fifty feet: the banks below and above were composed of the black alluvium, but I was told the limestone was found in considerable quantity both above and below. The height of the river was rather distinctly marked during the rainy season by the impression it had made on the foundations of a mosque built on its bank.

Tuesday, 22nd March 1819.—A short distance from the hill on which Beeder stands the soil gradually changes from black to a reddish tinge, from the decomposition of the iron clay of the range, of which and on which Beeder is built. This is the greatest elevation of the iron clay that I have seen in India, the barometer indicating 2,000 feet above the level of the sea. In some places, particularly in those excavations near the fort, it resembles very much the iron clay of Nellore, containing in its vesicles lithomarge, and the wells are generally very deep, one measured forty cubits; the temperature of the water was 78°. The iron clay contains lithomarge as usual, and it approaches a plum-blue colour. I ascended the tower on which the flag was, and could not avoid noticing the flatness of the isolated mountains, which had before struck me in so many instances.

Wednesday, 23rd March 1819.—I noticed greenstone, granite, and basalt in different parts of the building, which was chiefly composed of the iron clay and bricks.

Friday, 25th March 1819.—I rode this morning down the hill into the plain to the northward; the iron clay presented in no instance an appearance of stratification, but I noticed in several instances a gradual transition from it into wacke and thence into basalt, of which there are numerous little elevations in the neighbourhood. I noticed also lithomarge in considerable quantities, both in beds and in the rock itself. I reascended to the southward, finding the iron clay vary in form, and in some instances degenerating into an ochrey soft clay. It must be observed that the iron clay itself is very soft when first quarried, and becomes indurated on exposure to the air. To the south-east a curious sight presented itself in the form and disposition of the hills, of which I made a sketch taken in a different direction; the flattened summits were here most distinctly seen with the bevelments of the usual angle; around these were several small conical summits entirely isolated; some, on the contrary, were of a flattened rounded form, intermixed, consisting evidently of basalt.

Saturday, 26th March 1819.—I recommenced my observations on the hill of Beeder, and this morning rode to the north-westward. I everywhere saw the basalt at the foot of the hill passing into wacke and iron clay; in one place the transition did not occupy more than three feet, and was very distinct. This easily explains the depth of the wells in the fort and the tower; the very porous iron clay being unable to hold the water, it drips through, until it meets with the basalt. It is proper here to observe that in most instances the vesicles or pores of the rock had the appearance of long hollow tubes, always vertical. The basalt was not confined to the valley, but was found in a considerable number of elevations of all forms, around. I observed on the western side several springs just above the level of the basalt. The singular improvidence and want of foresight in the builders of the fort was very evident in several places; finding the rock so very soft and easily worked, they excavated or rather cut it down even with the wall; it has subsequently mouldered, and the wall has been precipitated with it. The high land projecting into the valley or plain through which the Manjira runs, like a number of buttresses, resembling very much that at Oudeghir, is seen to the westward; to the verge of the horizon to the eastward the hills have a more abrupt and irregular character. The magnetic needle did not appear to be affected by the iron clay rocks. I visited a manufactory of Beeder buttons: the basis pewter; the design, whether of flowers or other pattern, is chiselled out of the black ground by an instrument fitted for the purpose, a paper is pressed strongly over it, which takes the sharp edges of the design, and this paper is placed on a thin sheet of silver* for the purpose of cutting it into the requisite forms; these are then inlaid, and the edges of the pewter pressed down, so as to enclose the silver completely.

Sunday, 27th March 1819.—Temperature of two springs on the N.W. side of Beeder 76°, of neighbouring water 73°. I again examined the passage of the basalt into the iron clay. In some places the passage from the almost columnar basalt into nodular, and then into the iron clay, is very distinct; on the other hand, in other places the basalt appears to pass under it, and in some instances forms a causeway in the path, at the side of which rises the iron clay.

Monday, 28th March 1819.—I ascended the minaret and had a fine view of the country; the whole to the southward, eastward, and westward had the appearance of a vast elevated plain; to the north it terminates in the projecting buttresses of iron clay into the valley through which the Mayna runs, and which is ten miles in breadth.

Tuesday, 29th March 1819.—From Beeder we began immediately to descend to that ground which appeared from the minaret to be an extensive plain, consisting of numerous elevations and depressions, or a collection of several plains intersected by deep ravines. The whole consisted of iron clay, but on our road to Shelapilly four zones of the black cotton soil intersected our path, running due north and south; the difference was strongly marked. The iron clay soil was almost incapable of cultivation, and the other presented its usual appearance of fertility. We are at present encamped on one of these zones, having a direction nearly north and

* Copper and silver nearly equal parts.

south : at the foot of a conical elevation of forty feet, composed entirely of earth from the top, the iron clay is seen on each side at the distance of a quarter of a furlong. Query, is this hill the focus whence this muddy eruption has issued? One more is visible in the plain about two miles distant. The earth at the depth of two or three feet is sufficiently moist to allow it to be made into a ball with the hands. Temperature 5° below the atmosphere.

Wednesday, 30th March 1819.—I visited the small hill I have before mentioned, and found reason to suppose it artificial. The black soil was in some places intermixed with the trap clay, and in others was in indistinct zones, all with N. or N. by W. direction.

Thursday, 31st March 1819.—We descended from the iron clay during the night, and in the morning found ourselves on the black soil in a level plain. I found considerable quantities of carbonate of lime intermixed with the wacke, which is here found in the same nodular masses with a hard kernel which I have before noticed at Bhukhtahpoor. The soil contained a large quantity of carbonate of lime, effervescing considerably with acids.

Friday, 1st April 1819.—I crossed three nullas on my road to Sedashewpett, during a journey in the dark, all running eastward, along a ridge of gently undulating and slightly elevated land, as seen to the eastward as day broke, apparently a continuation of the Tadmanoor range, and taking the same direction. At daybreak I fell in with large masses of granite lying in the black soil, and in a ravine saw plainly that it formed the substratum covered with the cotton soil, although not in all parts, the soil being granite in the highest part. To the westward are seen the flat tops of the trap hills and the peculiar abrupt termination of the iron clay of Beeder. The soil in which we are is nearly all granitic. The intolerable heat of the day has prevented my excursions for some time past. The valley in which we are is hotter than at Hyderabad.

Monday, 12th April 1819.—I traced the trap veins into the granite and farther east than I could follow it; it is precisely similar to that of Golcondah, Suldapooram, &c. I nowhere observed it in contact and passing into the granite. It extends as far as the eye can reach in an easterly direction, sometimes forming considerable elevations, and at others, sinking beneath the surface, is scarcely visible.

Thursday, 22nd April 1819.—Twenty-six grains of the green carbonate of lime were dissolved in nitric acid; result to be hereafter mentioned. About three miles to the N. W. of the cantonment I observed a long deposit of quartz rock. The whole of the above green lime was dissolved except $3\frac{1}{2}$ grains of green earth, which remained behind on the filter.

Thursday, 29th April 1819.—Specific gravity of calcedonic agate from the Godavery, 2.60.

6th May.—Specific gravity of Tadmanoor basalt, 2.816.

11th May.—Specific gravity of flint from Medcondah, 2.63.

13th May.—Epidote from Multapoor.

Sp. gr. 3.312

13th May.—Green hornblende from the Carnatic.

Sp. gr. 3.243

30th May 1819.—Here commences my expedition with Everest during the rainy season.

4th June 1819.—To the left of the road before reaching Hyderabad I observed a deposition or bed of quartz rock, which I ascended, but was not able to discern its termination on either side; its direction was due north and south. The granite in the bed of the river Mussy was reddish, inclining to grey. The evening closed too soon on me to allow of any observations before reaching the camp.

5th June 1819.—I arose with the sun, and ascended the hill, which rises about 100 feet above our encampment. I observed a vein of the greenstone precisely resembling that of Golcondah and Secunderabad, its direction E. and W. as usual. The granite is of a greyish colour containing large crystallized masses of felspar of a similar colour to that observed at Ardinghy.

I no longer observed loggan stones; the granite is more compact and less liable to decomposition. About a mile from the station, in a westerly direction, I observed a long vein or deposition of quartz rock running north and south, probably a continuation of that observed yesterday; also on the ground numerous small concretions of carbonate of lime.

6th June 1819.—I quitted the camp early for Chitterghat. The granite was generally of the reddish grey colour, with loggan stones, but fewer than I have observed in other parts.

7th June 1819.—We arrived at Ballapooram, distant eight miles from our last station: the vein of greenstone was observed to our right running nearly east and west. At one period it crossed our path and we lost sight of it; soon after, at this place, we had heavy rain during four hours.

8th June 1819.—We passed through Hyattnuggur, and saw a trap vein to the right of our road, which accompanied us for a considerable distance; it reappeared at Seringhur, on the side of a granite hill.

9th June 1819.—The granite between Seringhur and Mulkapoor we found to be at times very red and close-grained. The trap vein was frequently in our path, but very much decomposed, and by an inexperienced eye would not have been distinguished from the granite. At Mulkapoor it assumed its usual character.

This place is situated at the northern extremity of a valley about five miles in length by one and a half in breadth; the hills rise on each side to the height of nearly 600 feet; they are of granite, which for the most part is of a grey colour, containing large crystals of bluish grey felspar. The large trap vein crosses this valley, which is nearly north and south, and disappears on the eastern side amongst the rocks. It is here of large dimensions, and appears to contain large pieces of epidote, as I found large pieces of that mineral at its foot.

10th June 1819.—I was one hour going to the top of the hill, where a flag was fixed. I found the granite much whiter than that below, which contains hornblende and compact felspar.

The view was very much bounded by the mist. I observed a few loggan stones, and the same irregular appearance of the rocks as in the neighbourhood of Hyderabad. The barometer stood at ten o'clock at $29^{\circ} 4'$, thermometer 84° ; below the hill at $70^{\circ} 8'$, thermometer 80° . In the evening I visited the trap vein. I found a considerable quantity of epidote, also a few pieces of amethyst quartz; the vein runs due E. and W. I was afraid to trace it, on account of the tigers.

17th June 1819.—I saw several veins of the trap running in a different direction from that usual to them; they appeared, however, to be continuations of that large one which I observed at Mulkapoor.

18th June 1819.—On the road I observed several trap veins and deposits on the mountains, but was not able to inspect them more closely, on account of the jungle. At this place two veins were observed, the one due E. and W., coming from a considerable distance, and a small one, on which was a pagoda, nearly at right angles to it, of small extent.

19th June 1819.—I reached Secunderabad this morning.

NOTES, CHIEFLY GEOLOGICAL, ACROSS THE PENINSULA FROM MASULIPATAM TO GOA, COMPRISING REMARKS ON THE ORIGIN OF THE REGUR* AND LATERITE; OCCURRENCE OF MANGANESE VEINS IN THE LATTER; AND ON CERTAIN TRACES OF AQUEOUS DENUDATION ON THE SURFACE OF SOUTHERN INDIA. By Captain NEWBOLD, F.R.S., Assistant Commissioner, Kurnool.†

Masulipatam stands on the sea-coast in nearly 16° N. lat., and about twenty-eight miles N. from the principal northerly embouchure of the Kistnah.

The adjacent country is the flattish maritime plain which, according to Benza, extends between the mouths of the Godavery and the Kistnah.

* *Regur*: the black, tenacious, but usually fertile soils of Central and Southern India are known by this name.—Eds.

† Reprinted from the Journal of the Asiatic Society of Bengal, vol. xiii., p. 984.

The alluvial sands that cover the surface rest on a bluish black tertiary or post-pliocene clay, resembling regur, imbedding terrestrial marine shells of existing species, and apparently identical with the black clay beds underlying the cities of Madras and Pondicherry, and other places on the Coromandel Coast. In many places the overlying sand is aggregated into a loose sandstone of a nodular form, and often perforated with sinuous and straight cavities, the work of *pholades*. The structure of this sandstone, which contains fragments of recent shells, is here concretionary. The cementing matter is clay and carbonate of lime, with a little oxide of iron. The sand continues to cover the plain to the distance of fifteen or sixteen miles inland, partially underlaid by these beds of black clay, to within some miles of Bezwarah, when the gneiss is first seen to outcrop from these recent strata.

The plain of Masulipatam, it is quite clear, once formed the bottom of a lagoon, or marine lake, and was elevated and dried up probably in the post-pliocene period. The channel of the Kistnah, which it is likely supplied much of the fresh water, appears to have suffered a southerly deflection from the elevatory forces and consequent alteration of surface.

At Bezwarah the gneiss rises into a ridge 600 feet high, running N.E. and S.W., its dip confused and contorted. Through a gorge in this ridge, at right angles with its direction, runs the Kistnah. No evidence could be discovered of the Kistnah's having cut the channel through the ridge: it appears to have been originally formed, like the transversed river-courses through the chalk escarpments of the Weald, by the elevatory forces that raised the strata to their present position. The features of the original fissure have doubtless been modified by the abrading power of the river, which, when swelled by the freshes, entirely fills the gap, about a mile in width, its sides rising rather precipitously from the river's banks.

Beyond this ridge, which is of no great length, the surface of the country appears flat as before, and the rise from the coasts scarcely perceptible. With regard to the theory of the tract between Bezwarah and Condapilly having once formed the bed of an extensive lake, my friend Mr. Malcolmson has justly observed that "a careful survey of the hills from the summit shows that they are short insulated ranges, such as are found over the Circars and other tracts rising from a level country; and that, had a lake existed in the plain above, every slight rise of the river would have carried its waters round their shoulders to the north and south."

The gneiss composing the ridge of Bezwarah is *garnetiferous*. Cleavelandite often replaces the common felspar, and renders the gneiss liable to decay. It contains large veins of quartz, and is intersected by greenstone dikes, the presence of which may serve to account for the distortion observable in its strata.

A little to the N.E. of Bezwarah are the diamond mines of Mallavelly, where the gneiss is in some places covered by a conglomerate sandstone, resembling the diamond conglomerate of Banganpilly and Kurnool, and of which it appears here as an outlying patch. The diamonds are, however, dug for in a bed of gravel composed chiefly of rolled pebbles of quartz, sandstone, chert, ferruginous jasper, conglomerate sandstone, and kunkur, lying under a stratum of dark mould about a foot thick. Dr. Benza traced the conglomerate sandstone hence by Ellore and Rajahmundry to Samulcotah.

From Bezwarah by Condapilly to the vicinity of the Warapilly ghat, the hypogene schists, chiefly gneiss and granite, occur. East of Warapilly these rocks are covered by the northern termination of the Cuddapah limestone beds. The diamond sandstone associated with this limestone stretches still further north, as already mentioned, by the diamond pit of Mallavelly to Samulcotah.

A little north of Warapilly, granite and the hypogene rocks continue to Hyderabad, and forty-eight miles to the N.W. of that city, to the village of Moonopilly, on the Beeder, where they are covered by the great overlying trap formation.

Most of the rocks about Hyderabad are of granite; that of Moeb Ally is of the laminar variety, often approximating to gneiss. The rock on which stands the

celebrated fortress of Golcondah rises in the centre of the valley of the Moossi, about six or seven miles westerly from Hyderabad, and is composed of a granite with reddish felspar, translucent quartz, with dull dark-green mica, and a few crystals of hornblende. Of this granite, which resembles that of Syene, the domes and outer walls of the mausolea of the old Golcondah kings are built. Through this royal cemetery runs a dyke of a dark crystalline greenstone, nearly E. and W., which is probably identical, from its direction, with a dike observed six miles west of this, between the British Residency and the great tank of Hussain Saugur. The rocks of the dike bear evident marks of the chisel, and, no doubt, furnished material for the sepulchres of the Golcondah kings, which are constructed of this or an exactly similar greenstone exquisitely polished.

From Golcondah the road towards Beeder lies, for the first few miles, over the low granitic ridges which form the northern side of the valley of the Moossi, to Lingumpilly, near which the ridge gently sinks into an undulating plain. Between this village and that of Puttuncherloo, which is situate about eighteen miles W. by N. from Hyderabad, the face of the country has a gentle N.W. declination towards the bed of the Manjira. Granitic rocks constitute its basis as far as Cummumpilly, about fifty miles W.N.W. from Hyderabad. The granite is both of the small-grained, red felspathic variety, and large-grained. Both varieties are met with at Kundi and Moonopilly, forty-eight miles from Hyderabad. The small-grained is seen to penetrate the other in sinuous veins. There is also a third variety, fine-grained, containing much quartz and imbedded nests of a dark steel-coloured mica. Veins of reddish felspar, with actinolite and a little quartz, also are seen. Both granite and gneiss, and the veins by which they are intersected, are penetrated by dikes of basaltic greenstone; the largest dikes observed were east of Puttuncherloo, a little west of Lingumpilly and Mootinghi; also at Sedashipett and Yernanpilly. The Mootinghi dike runs nearly N. and S., the rest preserve an easterly and westerly direction. The felspar of the granite and gneiss, near the line of contact, is deprived of its lustre and translucency, and becomes opaque and white like porcelain; the mica either almost disappears, or shrinks and becomes hard, compact, and of a ferruginous aspect, while the rock *en masse* acquires a tendency to split into rhomboids. Near the line of contact with the overlying trap, a reddish felspathic zone is observed similar to that described as occurring on the trap and granite boundaries at Gurdinny, in the Southern Mahratta Country, south of Bejapore, which passes into pegmatite soil. The soil from Hyderabad and Golcondah to Puttuncherloo is generally the light reddish sandy detritus washed down from the granite heights in the vicinity, occasionally mingled with nodules of a ferruginous clay resembling the *débris* of laterite. A little to the N. and W. of Puttuncherloo the granitic soil thins out and disappears, leaving exposed the sheet of regur that underlies it, and which occurs first at intervals, but afterwards as an almost continuous sheet from Moonopilly to Beeder.

Between Puttuncherloo and Moonopilly the strips of granite alluvium with which it is alternated appear to have resulted from the decay of *salbandes* and bosses of granite which formerly outcropped from the bed of the regur, but have since crumbled down by a process of weathering, which I have described elsewhere, and, being washed by the rains, have covered the surrounding soil with a sandy detritus, thus (see Plate I., Diagram, fig. 3) :—

A. Undecomposed granite.

BBB. Decomposed granite, forming an alluvial surface soil.

CC. Regur.

Near Sedashipett a stratum of kunkur intervenes between the regur and the granite. The surface of the regur, where it overlies the trap from Moonopilly to Beeder, is often intermixed with the detritus of the outcropping trap and laterite rocks associated. The soil resulting from the disintegration of the former is easily distinguishable from the regur by its much lighter and reddish tinge, arising from the peroxidation of the protoxide of iron it contains. The detritus of the darkest portions of the trap, even before peroxidation takes place, have a greyish or greenish-brown hue, totally dissimilar to the regur.

Boundary of the great overlying trap formation of the Deccan.—A little to the W. of Moonpilly rounded and angular fragments of the trap of the overlying formation are seen lying on and partially imbedded in the regur, with scattered, rugged, scabrous blocks of a compact cream and buff-coloured limestone passing into chert. The latter contained a cast of a small fresh-water shell resembling a *Physa*.

Ascending the gentle slope beyond the village of Cummumpilly the overlying trap was first seen *in situ* in a section afforded by the steep bank of a nulla. The trap is petrographically identical with that of Bejapore. The structure is at once sheeted like that of modern lavas, imperfectly columnar and globular. The globular trap disintegrates by a process of concentric exfoliation. The concentric coats weather into a brown speckled, friable wacke, which, falling off and washed away by the rain, leaves the hard spheroidal nuclei of basalt scattered on the surface, frequently in such numbers as to present the appearance of having been showered down by some volcano. These spheroids vary in size from a pigeon's egg to a 16-inch shell.

Recent Conglomerate.—A few miles to the south of Sedashipett a low flat-topped range of hills is seen, which, from the calcedonies, jasper, and fragments of trap brought down by the nulla, are probably of trap. These transported pebbles have been formed into a solid bed cemented together by lime, and form cliffs from three to ten feet in thickness on the nulla bank. Small rounded fragments of laterite are also included in this recent conglomerate, which is also seen in the beds of other rivulets between Moonpilly and Beeder. These conglomerates rarely extend more than twenty or thirty yards from the present channels of the streams, and generally not above several feet. The lime contained in the water of the stream and its tributary springs has evidently assisted in the consolidation.

About four or five miles S.W. from Moonpilly the low range of hills there seen was found to be of trap, the highest peak capped by a lateritic rock resembling that of Ifor Muth, south of Bejapore, described pp. 6 and 7, No. 2, Geological Notes. This laterite, near its junction with the trap, passes into a bed of crimson-spotted, lithomargic earth, resembling that of the Neilgherries, and is slightly impregnated with calcareous matter. The trap occupies the lowest situations, and constitutes the basis of the plain to Beeder, where it is overlain by an extensive bed of laterite 200 feet thick.

Laterite Bed of Beeder.—The laterite bed of Beeder commences about sixteen miles E.S.E. from that city: it is first seen resting on the trap in a bed about 100 feet thick, forming a hill, shaped like a truncated cone, about two miles S.W. from the village of Sungum. Thence it continues capping the trap with little interruption, and forming the surface rock of the level and extensive tract of table-land on which the city of Beeder stands. The laterite bed terminates to the west about twelve miles W.N.W. from Beeder, descending to the plain by a short but steep declivity, and at its basis the trap is again seen. It is about twenty-eight miles in extent from E.S.E. to W.N.W., and about twenty-two miles from W.S.W. to E.N.E. Its average thickness is about 100 feet, and maximum 200 feet; it rises from the trap of the plain in abrupt and sometimes precipitous acclivities. The cliffs supporting this table-land of laterite on the northern and eastern sides are from 100 to 200 feet high, but much lower and less abrupt on the west side, where the general level of the country appears to rise. The general direction of the cliff line, marking the termination of the bed near Beeder, is E. by S., but the outline is irregular, the cliffs forming salient and re-entering angles.

The plain on the summit is almost one monotonous level, and less broken by nullas than is generally the case on table-lands. This appears in part owing to the rain water being mostly drained off through the porous structure of the rock before it has time to collect.

The height of this table-land above the sea, as barometrically taken by Voysey, is 2,359 feet, about 200 feet lower than the indications afforded me by means of the boiling-point of water. Sheets of bare laterite impart a barren appearance to portions of its surface. The soil resulting from the disintegration of the laterite is brown or reddish, gravelly or pulverulent, according to the varying

petrographical structure of the parts of the rock of which it is composed. The soil formed from the dark and siliceous varieties is usually sterile, but that from the softer and more argillaceous varieties is carefully cultivated, producing abundant *mungáry* or early crops. The yellow *juare* and *bojra* grown on it are said by natives to be sweeter than those produced by any other soils. It seems probable that among other causes of the sterility for which lateritic soils have been abused may be ranked that of the porous character of the laterite when it forms the substratum which carries off the water, particularly from the loose siliceous varieties of the soil, before it has had time to fertilize the surface. In the more clayey kinds of the soil the water is longer retained. In the immediate vicinity of Beeder the soil does not lie thick, and the trees have a stunted appearance, particularly the mango trees that shade most of the mausolea and tombs in the precincts. Wherever there is a sufficient depth of soil and capability of retention of moisture its chemical nature is certainly not against arboreous vegetation, as the picturesque banyan tree in front of the cavern spring in the Farabagh can testify. On the summit of the table-land a few narrow belts of the regur occur outcropping from the alluvium. Voysey counted four well-defined zones of the cotton soil on this elevated insulation, between Beeder and Shelapilly, running N. and S., and lying between ridges of laterite, termed by him "iron clay." The fact of its being thus found on the tops of hills, and covering the bottoms of valleys and plains, at a distance from any river's course and out of the reach of present inundations, militates strongly against the theory of the regur being a fluvial deposit, as thought by some.

The principal wild shrubs growing in the lateritic soil on the surface are the *Pulas*, the *Kutlungi* or *Chunqu Cheltu*, the *Cassia auriculata*, the *Anona squamosa*, *Asclepias gigantea*, the *Bair* (*Zizyphus Jujuba*), the *Acacia*, the *Cara thorn*, and the small-leaved *Burratiri*.

Petrographical character of the Beeder Laterite.

The laterite of Beeder, generally speaking, is a purplish or brick-red porous rock passing into liver-brown, perforated by numerous sinuous and tortuous tubular cavities, either empty, filled or partially filled with a greyish white clay, passing into an ochreous, reddish and yellowish brown dust; or with a lilac-tinted lithomargic earth. The sides of the cavities are usually ferruginous, and often of a deep brown or chocolate colour: though generally not more than a line or two in thickness, their laminar structure may frequently be distinguished by the naked eye. Before the blow-pipe it melts into a black clay attracted by the magnet, but is rarely so ferruginous as to entitle it to the character of an ore of iron, though some of the nodules are picked out and smelted by the natives. The interior of the cavities has usually a smooth polished superficies, but sometimes mammillary, and stalactiform on a minute scale. The hardest varieties of the rock are the darkest-coloured and most ferruginous. The surface masses of the softer kinds present a variegated appearance. The clay and lithomarge exhibit lively-coloured patches of yellow, lilac, and white, intersected by a network of red, purple, or brown. The softness of this rock is such that it may be cut with a spade,—hardening by exposure to the sun and air, like the laterite of Malabar. The surface of the harder or more ferruginous varieties is usually barren, flat like a pavement, and often presents a glazed or semi-vitrified appearance. The *débris* of this rock, washed from its surface by the rains, is often seen accumulating in low situations, and reconsolidating into a nodular conglomerate; when the fragments of the laterite have been much rolled they assimilate externally to pisiform iron ore, but have neither its specific gravity, internal concentric structure, nor distinguishing lustre. The felspathic cement agglutinating these nodules is often of a deep brown colour, passing into various lighter shades according to the quantity of iron it contains, and is evidently composed of the more powdery parts of the parent rock. This alluvial laterite is seen in all lateritic areas in the south of India, and is as easily to be distinguished by its nodular and pisiform character, its position and the thinness of its beds, from the

true laterite, as the reconsolidated *débris* of quartz, mica, and felspar is from the true granite rocks, at the basis of which it is often seen in India to accumulate in beds of some thickness and tenacity. In tracts where kunkur and limestone prevail, as near Bejapore and Bangwari, the lime often enters into the cement of of this lateritic alluvial conglomerate.

Sections of the Laterite presented by the cliffs and wells of Beeder.

In the sections afforded by the faces of the cliffs and deep wells of Beeder the laterite sometimes presents a homogeneous cellular structure from summit to base. Generally speaking, however, it becomes softer and more sectile as it descends; and the cavities in the lower portions are better filled than those higher up. This may be attributed in some measure to the action of the rain, which, falling on the surface, percolates through the cavities of the upper portions of the rock, carrying downwards much of the ochreous and lithomargic earths they contain, until at length the cavities of the lower parts of the rock become so full that they form an impervious bed, where the water collects in hollows and cavities. Here it accumulates until it either trickles through the passes of the side of the cliff, or finds its way out by some of the nearly horizontal joints that intersect the rock. Such are the sources of the shallower wells and springs observed in the substance of laterite rocks. The deeper wells and springs are usually found at its basis, where it rests upon the impervious trap. Near the line of junction the trap is almost invariably observed to be in a state of disintegration, either as friable wacke, or as a brownish or greenish grey clay. The laterite is no longer hard or porous; its cavities are broken up or filled with lithomarge and ochreous earth, and, in short, it presents a dense bed of clay variegated with shades of purple, red, yellow, and white. This clayey state of disintegration of both rocks is ascribable chiefly to the collection here of the percolated water from above. The line of demarcation between the two rocks is not easy to distinguish, as the clays are intermixed by the water; that of the trap is easily to be distinguished, at a little distance from the contact, by its greenish hue and soapy feel; that of the laterite is often meagre to the touch, and either white or tinged of various shades by iron. The disintegration of the trap rock rarely extends more than four or five feet below the junction.

The tabular cavities in the laterite have not unfrequently a horizontal direction, and, where numerous, impart a somewhat laminar structure to the rock. They are observed to be most numerous where the water, being obstructed from passing lower down, is compelled to find its way to the sides of the cliffs; empty sinuous tubes, having a general vertical direction, are also observed varying from a few lines to one or two inches in diameter passing through the rock; one was traced thirty feet until it disappeared in a projecting portion of the cliff. These cavities are sometimes lined with drusy crystals of quartz. The surface of the interior is generally ferruginous and shining, and sometimes mammillary and stalactiform.

Veins of manganese in the laterite.—I am not aware that any writer on laterite has noticed the occurrence of veins of manganese associated with oxide of iron in this singular rock, a mineral which has probably afforded the beautiful lilac colour seen in its lithomargic earth. At the western base of the cliffs, about 16 miles W. by N. from Beeder, and a mile and a half from the village of Ilulfergah, on the left of the road leading down from the table-land into the plain, the laterite is seen penetrated by a great number of veins, which, at first sight, from their dark aspect and singular direction, might be taken for those of basalt. They are composed of black, often earthy, manganese, combined with iron. The veins are extremely tortuous and crossing each other in every direction, and give a reticulated appearance to the rock. On the sides of these veins the laterite is so hard as to stand out in relief from the weathered portions of the rock. The veins are usually thicker near the bottom of the cliff, fining off as they ascend, until they are gradually lost in the substance of the laterite; others are horizontal. As they diminish from an inch to a line in thickness, they gradually lose the deep bluish-black colour, becoming mixed with the matter of the matrix, and pass into

a brown, yellowish-brown, and, lastly, a purplish thread, which is lost in the substance of the rock.

The bluish-black substance of the veins is compact and hard in some parts; sectile and earthy in others, easily frangible. Before the blow-pipe, *per se*, it is converted into a black slag affected by the magnet; with borax it fuses into a bead of amethyst-coloured glass.

The indurated sides of the veins are of a mottled reddish-grey colour, resembling indurated lithomarge: portions of the greyish-white clay in their vicinity acquire an almost vitreous hardness and a cellular fritty aspect; a dull greenish enamel lines most of the cavities in the laterite. The lithomarge is slightly indurated. The gritty parts of the rock exhibit traces of calcareous infiltration. The greyish-white clay fuses into a greenish enamel, similar to that lining the cavities. The pure lithomarge undergoes little alteration before the blow-pipe,—does not fuse, but becomes indurated, darker, and more mottled. The impure varieties exhibit in the reducing flame minute greenish globules.

The lithomarge and the greyish white and coloured clays all emit air-bubbles when placed in water; they also slightly decrepitate, but do not fall to pieces; with water they form a plastic clay. The purer varieties of lithomarge are little adhesive, feel meagre; the streak and fracture is earthy; that of the white clays shining, they feel slightly greasy to the touch.

It must not remain unnoticed that near to the base of the laterite cliff, in which the manganese veins just described occur, runs a dike of compact and exceedingly tough basalt, occupying the space of a few yards in breadth between the laterite and the trap of the plain. There I was unable to discover any veins of manganese either in the latter or the basalt.

The basalt of this dike is seen, in the bank of an adjoining nullah, to assume both the globular and columnar structure.

Valley of Denudation.—At the N.E. extremity of the cliffs of Beeder an instructive example of a valley of denudation and excavation, about a mile in breadth, is afforded, of which the following is a section. It shows at the same time the immediate superposition of the laterite on the overlying trap of the Deccan. (Plate I., Diagram, fig. 4.)

AA are cliffs of laterite from 120 feet to 90 feet high, once evidently a continuous bed over BBB, sheeted trap and amygdaloid, and occupying CC. The space DD, hard, ferruginous masses of laterite. Though evidently much water-worn and disrupted, they have successfully maintained their position against the transporting effects of the stream, which not only stripped off the laterite and denuded the subjacent trap, but excavated the latter to the depth of many feet, having the hard mass *Ba* in the centre, and the valley of denudation and excavation DD.

This valley runs E. by S., and over the plain at its eastern extremity are scattered the harder nodular fragments of the stripped laterite mingled with regur, and the recent lateritic alluvium of the adjacent cliffs.

Economical uses of the laterite of Beeder.—The laterite, particularly its closer varieties, has been largely used in building the city walls, in the revetments of its ditches, wells, &c., and in the construction of the more common cemeteries. The principal edifices, walls, and bastions of the fortress are of the trap. The laterite quarries of Beeder resemble those on the coast of Malabar and Canara, but are deeper, in consequence of the sectile beds, which are usually preferred, lying deeper below the surface than in Malabar, where the far greater moisture of the atmosphere may have some effect in preserving the moisture and sectility of the upper parts of the rock. Both rocks harden on exposure to the air. There is little appearance of stratification in the cliffs, and on the other hand no tendency to a prismatic, columnar, or globular structure. The rock has much the appearance of those enormously thick-bedded sandstones, where, in cliffs even of 200 feet high, there is no alternation of other beds; and the rock appears one unstratiform trap, often cleft, by vertical fissures, into columns and pinnacles.

I have dwelt longer upon the subject of the Beeder laterite than at first sight

might appear to merit, but I may plead in extenuation that it is the first bed seen beyond the granitic and hypogene area, resting on the overlying trap, a rock (the nature of the rock, on which it rested had been differently stated by Malcolmson and Voysey, by the former as granite, but the question, however, by this visit has been set at rest for ever) which probably belongs to the tertiary period. Calder, to whom we are indebted for the only general view of Indian geology hitherto published, and whose ideas have been quoted by some eminent European geologists, terms laterite "a contemporaneous rock associating with trap, and commencing only where the overlying trap ends, a little to the N. of Bankote, or Fort Victoria, and thence covering the primitive rocks of the ghats and W. coast to Cape Comorin." Now the laterite of Beeder and many other localities, some of which will be described in the course of this paper, lies beyond the area of the rocks termed primitive by Mr. Calder, and rests *upon* the overlying trap; it has never been observed underlying or alternating with it; therefore, the only proofs available, viz. that of superposition and non-alteration, tend to prove its more recent and non-contemporaneous origin,—a point of great importance. The existence in it of veins of manganese, and of large beds of the same mineral I afterwards discovered in the laterite area capping the granitic and hypogene rocks of the Kupputgode range in the South Malhratta Country, are remarkable facts worthy of note, for until we find beds and veins of this mineral in the granitic and trappean rocks underlying the laterite we must be slow to admit the theory advocated by several geologists of the latter being nothing more than the result of the recent disintegration of the former rocks *in situ*. The beds of lignite discovered by General Cullen and myself in the laterite of Malabar and Travancore, and the deposits of petrified wood in the red hills of Pondicherry, in a rock which, though differing in structure, I consider as identical in age with the laterite, and other facts, too long for enumeration here, point rather to its detrital origin like sandstones. I do not ever recollect having seen, in the laterite resting on the overlying trap, any fragments of the calcedonies or zeolites that often so greatly abound in the rock immediately below it,—a fact which, while decisive against the decomposition *in situ* theory, would lead us to the inference that the laterite owed its origin to the detritus of other rocks than the overlying trap.

Laterite, by many geologists in Europe, is supposed only to fringe our coasts and exist as a thin cap on the ghat summits; every day, however, is adding to our knowledge of its extent in the interior of the peninsula; and it is evident not only that it must have covered it formerly to a much greater extent than at present, but that it has since been much broken up by the subsequent denudation, of which, on the small scale, Beeder affords a specimen (*vide* Section). The effects of this denudation, however, are visible on the grand scale in the interior of Southern India, where the tops of mountains of granite, hypogene rocks, and sandstone, many miles asunder, are seen capped with laterite in almost horizontal beds, and little or no laterite in the intervening plains and valleys, as in MacCulloch's description of the great denudation of the red sandstone on the N. W. coast of Ross-shire. It is impossible to compare these scattered and detached portions without imagining that the whole intervening country has once been covered with a great body of laterite, enormous masses of which have been removed by denudation. The same remarks might be applied with some modification to the subjacent sandstone. Some fragments of this great denudation may be recognized in the laterite gravel and clay, which overspreads the surface of many parts of the country, and which, when reconsolidated, it is often difficult to distinguish from the true laterite, from which it has been derived, and for which it has often been mistaken.

From Beeder to Calliany, trap and laterite.

It is now time to resume our journey towards the old Jain city of Calliany, more lately the metropolis of the ⁹ kings, a provincial city under Aurungzebe, and now under the Nizam.

From the foot of the cliffs of Beeder a plain, based on trap amygdaloid, abounding with calcedonies, zeolites, and calc-spar, broken only by a few slight undulations, extends to Calliany, near which the surface undergoes a gentle but considerable ascent; a few belts of the reconsolidated laterite gravel just described cross the road resting on the trap, and are evidently derived from some high laterite cliffs to the W. and N. of the city, to which I traced the *débris*. On one of these heights stood a few denuded laterite cliffs, about twenty or thirty feet high, insulated from each other by spaces four or five feet wide, and resembling those already delineated in the Beeder valley section. A piece of calcedony was picked up in the gravel, but none could be discovered in the unfractured laterite. The trap, in the form of wacke, here underlies both the laterite and its detritus; the line of demarcation is perfectly defined and distinct.

Bazar excavated in the laterite cliffs of Calliany.

Nearer Calliany the bed of laterite gravel is succeeded by laterite, which forms a low ridge of hills immediately to the west of the town. A street has been cut from the rock running along the side, about midway up the ascent, in the scarp of which a long row of now deserted houses and shops has been excavated, and, also, small caves supported by pillars of the laterite left untouched while excavating. The bases of the cliffs in the vicinity are quarried for the softer variety of the laterite, which is carried off in baskets, ground with water into a plastic clay, and used as a waterproof covering to the tops of the flat-roofed houses of Calliany. The laterite is here called by the natives, from its worm-eaten appearance, *Kire ka putthur*, or *Silika putthur*. The Tamuls call it *Chori kulloo*, *vettie*, and *culloo*; and on the Malabar coast it is termed *Stika culloo*.

The wells here are of considerable depth. The temperature of one, 35 feet to the surface of the water, was $78^{\circ} 5'$; temperature of air in shade, 89° ; the boiling point of water, $206^{\circ} 5'$; temperature of air, 84° .

The soil between Beeder and Calliany is principally lateritic, mixed with the detritus of the subjacent trap, crossed in a few situations by zones of regur, often blended with the trap and laterite soils; the low flat-topped hills avoided by the route appear to be of laterite resting on the trap.

From Calliany to Gulburgah.

The laterite continues from Calliany to a few miles beyond Murbi, a distance of about fifteen miles, forming long flat-topped ranges of hills rising about a hundred feet above the general level of the table-land, and running E.S.E. They are separated by narrow, flattish valleys, having a similar direction to that of the hills, and to that of the wider valley separating the Beeder and Calliany laterite cliffs. They present the usual appearances of valleys of denudation, and in many places the trap and amygdaloid underlying the laterite have been exposed.

At Murbi the laterite table-land of Calliany is descended to a terrace or step of comparatively level land, where the trap and its associated wacke, amygdaloids, and kunkur, are the only rocks met with. A little N. of Gulburgah, another terrace, formed by these rocks, is descended to the still lower level on which the city stands in the valley of the Bhima, about twelve or fourteen miles to the north of the present channel of this fine river. About ten miles south of the city, beds of limestone outcrop from the trap between the villages of Nundipoor and Sinnoor, and continue forming the bed of the Bhima at Firozabad, dipping slightly towards the S.W. The limestone continues, on the opposite or south bank of the river, about four miles a little to the N.E. of the village of Gownully, where it is again overlaid by the trap. Plate I., Diagram, fig. 5, is a rough section from the table-land of Calliany to the south bank of the Bhima, comprehending a tract of land about 50 miles N. and S., exhibiting extensive denudation, both laterite and trap having been stripped off the subjacent limestone exposed in the valley of the Bhima. On the south side of the valley the trap reappears, but the softer laterite has been entirely swept away.

- A. Laterite. Rolled and water-worn fragments of the trap occur
 BB. Trap once forming in and on the soil and gravel overlying the limestone,
 a continuous sheet. at a distance of two or three miles from the present
 C. Limestone. (channel of the river, and far above the reach of its
 highest floods. The traces have all the appearance of
 having been formed by the action of water.

Iron-smelting at Murbi.

I must not omit to mention that at Murbi, near the edge of the Calliany table-land and the adjacent village of Boghirry, the more ferruginous nodules occurring in the laterite are collected, roasted, coarsely pounded, and smelted. The furnace at Murbi is a small one, and capable of smelting about one kucha maund of twelve seers *per diem*. The ore is subjected three times to the action of the fire—twice to reduce it and cleanse it from dross by beating the half-molten mass with heavy hammers; and the third time to form it into bars, and other forms convenient for agricultural implements, which are sent to Gulburgah and Calliany. These markets are also supplied with iron from Mogumpilly, in the Koil Talook. The ore, which is in the form of nodules, often exhibits, on fractured surfaces, stripes of hæmatic red earthy ore, alternating with others of a metallic iron blue. It is sold by the people who collect it to the iron contractor on the spot at the rate of three and a half Hyderabad rupees the kucha maund of twelve seers.

Lithologic character of the Firozabad Limestone and Traps.—The denuded limestone in lithologic character closely resembles that of Kuddapah, Kurnool, Warapilly, and Talicota; no fossils were found in it. The prevailing tint is a greyish blue; strings of small spherical cavities occur in it as in the limestones just alluded to, some empty, others filled with a brown ferruginous dust.

The trap has often a porphyritic structure, imbedding crystals of a dull olive-green mineral, which in disintegration assume a greenish-brown tinge, and finally fall out, leaving cavities in the rock. They are not unlike some varieties of olivine, a mineral occasionally seen in this trap; a great development of kunkur is observed in its fissures previous to coming on to the outcropping of the limestone.

The Bhima River.—The Bhima is about six hundred yards in apparent breadth at Firozabad; its temperature 78° Fahr.; temperature of air 90°; approximate height of bed above sea by boiling-point 1,730 feet. The waters were swollen and muddy from the monsoon rains (June), and running at the rate of two and a half feet per second. A tumblerful of the water deposited about $\frac{1}{12}$ its bulk of a fine reddish-brown sediment, which effervesced with dilute sulphuric acid, evidently the *débris* of the trap, amygdaloids, and limestone rocks, over which it passes. The banks are shelving, and composed of the greyish-blue laminar limestone, covered with silt and regur, and their surface strewn to a considerable distance on either side with rolled fragments of agates, calcedonies, &c., marking the extent of the floods.

The bed has been hollowed in the limestone, exposing shelving surfaces of the rock, in some places perfectly bare, others covered with silt or a gravel from the size of a pea to that of an egg, fragments of trap, and limestone, calcedonies, jasper, and agates. In consequence of the disorders committed by the irregular Arab soldiery, the town of Firozabad had been almost deserted, and the *Ambikars* with their basket-boats had quitted the ferry, which was now unfordable, and the water running with considerable rapidity. The village people collected a number of pumpkins, and about noon they succeeded in netting these together and constructing a tolerable raft, with which the stream was easily crossed.

The sources of this fine river rise in the Western Ghats a little to the N. and S. of Poonah; after watering the fertile plains of the country of the Mahrattas, where its banks are famous for the breed of horses and mares, from which the hardy cavalry of this warlike race has been chiefly supplied, and, flowing south-easterly towards the Bay of Bengal, over the almost continuous sheet of the great

overlying trap formation of the Deccan, it joins the Kistnah on the granite and hypogene area of Hyderabad, about fifty miles direct distance S.E. from Firozabad. It contributes to the Kistnah many of the *Pietri duri* of the overlying trap formation that are rolled along its bed over more than half the peninsula.

Trap Formation from the right bank of the Bhima to the Laterite of Ingleswara.

The trap again covers the limestone a little to the N.E. of the village of Gonnully, about four miles from the river : the latter rock is seen outcropping for the last time at the base of a low hill of trap between Gonnully and Sunnoo. The trap is amygdaloidal, veined with kunkur, and imbedding calcedonies and calc-spar.

From Sunnoo to Jyattaky the calcedony is seen both in veins and nodules, and passes into plasma ; the colour varies from the lightest tinge of apple-green to the deep hue of heliotrope, into which it passes ; in some translucent varieties the colouring matter is deposited in delicate moss-like filaments ; the colouring matter of the plasma has not been exactly ascertained by chemists, but it seems to be similar to that of the heliotrope, both disappearing before the blow-pipe.* The colour of this variety of plasma when exposed to the reducing flame changes to a purplish white, the plasma becoming opaque and easily frangible. I have little doubt that the red spots of the variety of calcedony termed heliotrope are derived from thin beds of fine bright-red bole, which are often seen alternating with the trap, and in nests, in this vicinity.

The surface of the country to Sindaghi presents the long, low, flat, step-like elevations of trap, separated by plains along which the route lies, and running in a S.E. direction. The soil is usually the detritus of the trap and laterite, in belts and patches of a grey colour and dark red, sometimes sandy ; the vegetation stunted, consisting chiefly of the acacias, the *Cassia auriculata*, and *Hingun* thorn. On a fallen blighted acacia amid the low jungle I observed a chameleon perched motionless with his head erect and jaws wide open, as if indeed making a meal of the afternoon breeze. His skin, which mimics the prevailing hues of surrounding objects—blue when basking beneath a cloudless sky, and emerald when shaded by the forest's verdure—had here so strongly assimilated that of the black and ashy-white stem on which he lay that at first I thought it was a singular excrescence of the wood itself.

A little to the N.W. of Sindaghi the summit of a ridge is observed covered with globular masses of a compact basaltic trap, underlain by a bed of the fine red clay imbedding a profusion of zeolites, also heliotrope, plasma, geodes of calcedony lined with quartz, crystals, semi-opal, cacholong, agate, and calc-spar, resting on a greenish-grey wacke. Both rocks are veined and interstratified with kunkur of a somewhat cancellar structure. The horizontal layers of kunkur are often from ten to twelve inches thick. The softer wacke and amygdaloid in weathering often leaves the harder layers of kunkur projecting from the surface. (Plate I., Diagram, fig. 7.)

A, globular basaltic trap ; B, red amygdaloid ; CC, kunkur layers ; D, wacke.

From Sindaghi by Ipperghi to Ingleswara the aspect of the country is much the same as from the Bhima to Sindaghi, but the plains become flatter, more extensive, and more intersected by nullas. At Ipperghi the trap assumes the rich brownish-purple or chocolate hue of the trap of Bejapore, and is seen in the bed of the rivulet resting on a beautiful red zeolitic amygdaloid : the line of contact is marked and distinct. Heliotrope and plasma are less common here.

Indications of the laterite are perceived, before reaching Ingleswara, in beds of its detritus re-cemented by a brown ferruginous and calcareous paste ; also, fragments of chert and a variety of limestone porphyry. As anticipated, the laterite was found capping a ridge of trap and wacke a little to the S.W. of Ingleswara, presenting a similar development of the lithomarge near the line of contact with the trap as observed at Beeder. The latter rock passes into a

* Perhaps silicate of iron ? that of heliotrope being the red oxide ?—Eds.

friable greenish wacke, and also into a dark amygdaloid, containing spheroidal cavities, often filled or lined with green earth.

The hill of Ingleswara, marked by an old tower, is principally composed of wacke penetrated by flattish, apparently compressed, veins of fibrous arragonite. On the top of the hill are scattered globular and angular fragments of basaltic trap, while, partially imbedded in the soil covering its sides, are rough, scabrous-looking blocks of a light-coloured rock, resembling altered limestone passing into chert. These blocks are mostly angular, from generally six inches to two feet thick, have a whitish exterior so rough in aspect and touch as, in these respects, to resemble trachyte; and, when fractured, the small glistening red and white calcareous crystals they imbed might at first sight be taken for those of glassy felspar. The softer and more crystalline portions of this singular rock effervesce with acids. It occurs also in detached blocks, on the wacke at the base of the laterite cliffs S.W. of Ingleswara. The rock here is more compact, homogeneous, less crystalline in structure, and exhibits dark dentritic delineations. Some fragments are partly coated with a thin bluish white enamel, which is apt to assume a botryoidal form; on its surface are seen numerous small white globules of white enamel. Among the lateritic *débris* intermingled with these blocks are interspersed numerous nodules of a black cineritious-looking mineral, containing cavities filled with an impure, earthy, brown manganese; their black outer crust is often so indurated as to give fire with steel. Before the blow-pipe, *per se*, it reddens slightly and exhibits minute globules of a bluish-white enamel. The following section will exhibit the position of these blocks of cherty limestone as they occur on the sides of a valley of denudation and excavation, a mile in width. (Plate I., Diagram, fig. 6.)

- A, Laterite, overlying trap at B, and stripped off at E and Bb.
- B, Bb, Trap.
- C, Globular basaltic trap.
- DD, Blocks of whitish scabrous limestone, passing into dust, and half imbedded in lateritic gravel.
- E, Valley of denudation and excavation.

The limestone has very much the appearance of the fresh-water limestone of Nirmul, Moonapilly, and Koolkonda between Gulberga and Muctul, and has evidently been broken up and altered by the basalt.

The angularity of the fragments and their little-water-worn appearance prove that this bed must have been deposited and existed *in situ* at no great distance from the present locality. The blocks were not observed in the centre of the valley, from which it may be inferred that the limestone was only a littoral deposit, or that its fragments were carried away by the aqueous current by which the valley was excavated. The laterite cliffs of Ingleswara, like those of Beeder, Sondur, and on the western coast, are cavernous: one of the caves near the summit is held sacred by the Hindoos. The entrance was barred by a locked gate; it is said by the natives (*credat Judeus*) to communicate with another similar cavern on the hill of Nageswar, also said to be of laterite, about three coss to the S.W. Near the mouth is one of those remnants of the strange ophitic adoration that prevailed over great part of Southern India in the shape of an image of which the upper portions resemble those of a young female, and the lower terminate in the coils of a serpent.* Ingleswara is famed in Hindoo annals as the place where the nuptials of Buswapa, the founder of the great sect of Jungums and Lingayets, and the overthrower of the Jain dynasty of Calliany, were celebrated. The small laterite hill of *Hori Muth*, his birthplace, is at a little distance.

From Ingleswara to about eleven miles S.W. of Bagwari, trap, wacke, and amygdaloid form the basis of the plain where its southern limit is again crossed to the hypogene area. A reddish felspathic zone, similar to that already noticed in the Bejapore Notes, intervenes between the trap and the gneiss, which is first seen to outcrop in the bed of a nulla between the villages of Hungraghi and

* We have in the Museum a double image of this kind formed by two female busts with serpent terminations.—EDS.

Wondal, where a section is afforded showing the thinned-out edges of this great *coulement* of trap resting on and coating the reddish intervening felspar zone. This zone, or *salbande*, is probably nothing more than the altered gneiss.

The mica in the gneiss is replaced by hornblende, and at a little distance the gneiss passes into hornblende schist. Both rocks are highly inclined, dipping westerly; gneiss, felspathic-veined and interspersed with quartz, continues to the left or north bank of the Kistnah to Chimlaghi, where it disappears under the beds of a bluish limestone, resembling that of Firozabad. The gneiss is in some situations capped by laterite fragments of a greyish blue and buff limestone; the latter crystalline and effervescing feebly with acids, and penetrated by tortuous veins of the dark chert. A few globular boulders of granite and greenstone are scattered over the low hill of Chimlaghi, out of the reach of the floods of the Kistnah. They have a rugged water-worn exterior. The hill itself is capped with a layer of kunkur, varying in thickness from a few inches to five feet, imbedding nodules of a ferruginous clay and angular fragments of a grey and dark-coloured chert, a bed of which is seen intervening between the limestone and the gneiss. The kunkur bed rests upon disturbed strata of the bluish limestone, so much broken up that it was impossible to ascertain the dip or direction of the rock. The gneiss underlying the limestone imbeds crystals of calc-spar.

From the junction of the Kistnah and the Gutpurba, near Chimlaghi, by Kulladghi, to the west of the falls of Gokauk on the eastern flank of the Western Ghats, a limestone and sandstone formation, supposed to be identical with those of Cuddapah and Warapilly, extends with partial outcroppings of the hypogenes and a few patches of overlying trap and laterite. The nature of the rocks composing the summits of the ghats immediately behind the falls of Gokauk has not been noticed. A little further south they are composed of the hypogene schists and granitic rocks, covered partially, to the sea at Goa, Vingorla, and Malwan, by laterite. North of Malwan the overlying trap is almost the exclusive rock seen to Surat. Of the geology of the Southern Maratha Country I intend speaking more fully in a subsequent paper.

ON A FOSSIL FISH FROM THE TABLE-LAND OF THE DECCAN, IN THE PENINSULA OF INDIA. By Colonel SYKES, F.R.S., G.S. WITH A DESCRIPTION OF THE SPECIMENS, by Sir P. DE M. G. EGERTON, F.R.S., G.S.*

General Fraser, the British Minister at the Court of the Nizam at Hyderabad, in a letter to me dated the 31st July 1850, mentioned his having transmitted some specimens of fossil fish, with impressions of leaves, in a matrix which Dr. Walker, whom General Fraser had employed in statistical and natural history researches in the Nizam's territories, considered as appertaining to a coal-formation. General Fraser had previously caused specimens to be sent to the Asiatic Society of Calcutta; but the reports upon them not satisfying Dr. Walker a second series of the specimens were sent to me by General Fraser, with a request that I would ascertain their possible relations with true coal strata.

Considering the enormous development of trap, covering some 200,000 square miles in the Deccan,—the granite basis of the whole peninsula of India,—the area occupied by laterite,—the want of sedimentary rocks, and the hitherto total absence of organic marine fossils in the Deccan (for a few shells brought to notice by the late Dr. Malcolmson were either fluviatile or lacustrine),—the discovery of fossil fish on the margin of the trap region was a novelty necessarily of great interest, as indicative of the former submerged state of the peninsula of India. The fossils arrived in October last, and a glance showed that the remains were imbedded in bituminous schist. The specimens were met with, General Fraser mentioned, near to the confluence of Wurda and Godavery rivers, north of Hyderabad, and south of Nagpur. But as the Wurda runs into the Wein Gunga, and the latter runs into the Godavery, General Fraser probably meant the confluence of the Godavery and the Wein Gunga. The junction of the Wurda

* Reprinted from the Quarterly Journal of the Geological Society of London, vol. vii., part i., p. 272.—Ed.

and Wein Gunga is about 170 miles north-easterly from Hyderabad, in latitude $19^{\circ} 87'$ N. and longitude $79^{\circ} 50'$ E., and the junction of the Wein Gunga and Godavery is about 115 miles north-easterly from Hyderabad, in latitude $18^{\circ} 49' 30''$ N., and longitude $79^{\circ} 56' 30''$ E. I have reason to believe these localities to be from 1,200 to 1,400 feet above the sea level.

The Curator of the Geological Society inspected the specimens of fossil fish, and he considered that they belong to a genus which in European latitudes is usually associated with the Oolitic formation. The Oolitic rock nearest to the locality of these fossils is in Cutch, fully 1,000 miles distant, and with a thickness of from 4,000 to 5,000 feet of trap intervening for a couple of hundred miles; nevertheless, many of the European associates of Oolite exist upon the Wurda and Godavery, namely, bituminous shale, wood-opal, calcareous spar, rhomboidal quartz, agates, chalcedony, hornstone, &c., and the rock itself may be overlaid by the prodigious flow of trap. It was not until the arrival in town recently of my friend Sir Philip Egerton, whose acumen and critical knowledge of fossil ichthyology render his opinion so valuable, that I was enabled to get the specimens examined with deliberate attention. But Sir Philip, with that readiness which makes him at all times anxious to render his knowledge available to others, instantly responded to my appeal, and I am permitted by him to make use, in his own words, of the conclusion at which he arrived after an examination of the fossils. He says:—

"The specimens, with one exception, are much broken, and the materials scattered confusedly over the schist; but there is sufficient evidence to show that they are all referable to the genus *Lepidotus*, and most probably all to one and the same species, *that being a new one*. It is remarkable for the slender proportions of the anterior part of the trunk, and the thickness of the posterior part between the anal fin and the tail. The scales are perfectly smooth, and the free posterior margins entire, without any trace of serration. A ramus of the lower jaw is seen on one specimen, showing the teeth to be conical, with rather elongated basis. There is little doubt but that it is a true Oolitic form, and apparently of the date of the Lias. The schist in which the fish are imbedded reminds me strongly of the bituminous shales of the Lias of Seefeld in the Tyrol. It is very desirable that more perfect specimens should be obtained, since the only one showing the form of the fish wants the head, and exhibits only the under surface of the scales."

In a second note Sir Philip adds:—"The genus *Lepidotus* extends from the Lias to the Chalk, both inclusive; but your species bears evidence of being one of the earlier members of the race. It was probably an estuary or in-shore fish, from its frequent association with terrestrial vegetable remains, as in the Hyderabad specimens."

Sir Philip Egerton has so ably and completely exhausted the subject, as far as the specimens permitted, that it only remains to me to name the new fish; and, as it was very much my practice in my Natural History investigations to associate new species with the localities or provinces where they were met with, I would propose to call the specimen *Lepidotus Deccanensis*.

I have written to India for more specimens, but, as the discoverer, Dr. Walker, has lately unhappily lost his life by a fall from his horse, I am not very sanguine about their receipt.

ON THE GEOLOGY OF THE NEIGHBOURHOOD OF KOTAH, DECCAN. By Dr. THOMAS L. BELL. Communicated by Colonel SYKES, F.G.S.*

[Read April 7, 1852.]

The village of Kotah† is situated on a plain, on the left bank of the Pranheetah River, twelve miles above its junction with the Godavery, in latitude $18^{\circ} 51'$ N., and longitude $80^{\circ} 2'$ E.

This is the locality selected by the late Dr. Walker for the experiment of boring for coal, and from whence the specimens of fossil fish (*Lepidotus Deccanensis*) were obtained that were figured and described in Quarterly Journal

* Reprinted from the Quarterly Journal of the Geological Society, vol. viii., part 1, p. 230.—Ed.

† The town of Kotah [or Kota], on the Chumbul River, is situated about 450 geographical miles to the NNW.

Geological Society, vol. vii., p. 272, Pl. XV. [this vol., p. 301.—Ed.] The "Station" where the bore was made is situated on the bank of the river, about half a mile to the NNW. of the village.

To the westward the country (after crossing the river) is slightly undulating as far as the town of Chinnoor, distant twenty miles; to the east the plain is bounded by an abrupt ridge of hills, distant five miles, which also, in consequence of their north-west and south-east direction, bound the plain to the north; on the south the country is open and flat.

On examining the surface, proceeding from Chinnoor towards Kotah, which lies nearly due east, the road is observed to pass over sandstone for four miles, which, about half a mile from the river Godavery, ceases, and changes to the "black regar" or "cotton soil";* this continues for about three miles, and disappears as the road leaves the river, the sandstone again becoming visible, which is continued without interruption until we approach the Pranheetah at Annawarrum, distant one mile from it, where the "black regar" alluvium is again entered upon, and ends by forming the nearly perpendicular right bank of the river. The bed of the river measured 666 yards in breadth, with a bottom of fine white quartzose sand; the breadth of stream varies with the season,—at present (June 17) it is narrower than at any other period of the year, and measures only 50 yards, with an average depth of 3 feet. Pursuing this superficial examination in the same line, the "black regar" is found to form the left bank, which is 43 feet in height, and then to pass easterly for nearly a mile, when it is gradually lost, its place being supplied by sand, pebbles, and quartzose conglomerate, the *débris* of the adjacent hills.

The hill which limits the plain to the east is one of the chain extending from Budrachellum; it has a NW. and SE. direction, and is 478 feet high above the level of the plain; its top is flat, and covered with fragments of quartz-conglomerate (with a ferruginous cement) and iron ore of various degrees of richness, from the yellowish-brown spheroidal masses of clay-iron-stone containing 35 per cent. of iron, to the red oxide containing upwards of 70 per cent. The sides and base are likewise covered with the same.

The hill is composed of unstratified red sandstone, which at places becomes ferruginous, the oxide of iron forming layers from 2 to 4 inches thick: where this occurs the rock is less susceptible of atmospheric influence, and is not worn to the same extent as the surface generally, and the frequent projecting of these indurated portions gives it the appearance of being intersected by a number of septa.

Commencing from the most northerly point to which my observations have extended (Chicala, at a distance of twelve miles from Kotah), and proceeding southerly by the left bank of the river, three ridges of hills present themselves of the same lithological characters as the one already described. These ridges are separated from each other by plains of the "black regar" alluvium. They have a NW. and SE. direction, are flat at the top, and terminate their northerly course at the river in escarpments of various heights. On approaching the "Station," and 200 yards from it, we come upon another sandstone rock of a very different character, inasmuch as we find distinct marks of stratification and no septa of iron-ore. The rock is 36 feet high, and ascends perpendicularly from the water (which is here 14 feet deep); its strike is ENE. with a dip of 10° to the NNW., its surface is bare only to a small extent, being for the most part covered with alluvium of "black regar," which is level with its highest point. The strata of this rock are made up of a number of thin layers arranged diagonally, separated from each other by coloured lines; these thin layers are composed of round grains of white quartz: between the strata is found a layer of conglomerate of quartz-pebbles. A few yards lower down the river the outcropping of laminated sandstone, alternating with clay, is observed, with a similar strike and dip as the rock above; between these outcroppings and the position of the bore-hole the surface is covered with a tough black mud. Proceeding south of the "Station," and a hundred

* A black alluvial earth, supposed to result from the decomposition of trap.

yards from the bore-hole, is a confused heap of argillaceous limestone, extending down the bank of the river for 150 yards; the layers of this rock vary in thickness from one-eighth of an inch to a foot, and are frequently separated from each other by seams of fibrous carbonate of lime; the thickest masses of this rock (weathered) exhibit crack-casts. Two miles lower down the river the sandstone is again visible, presenting the same stratified character as the rock situated 200 yards north of the "Station." The sandstone in this direction extends to Bagartepett, fifty miles on the road to Warungul, but is not stratified.

At the "Station" the boring carried on in search for coal exhibited the following results. The alluvium is 59 feet deep at the bank of the river, but it gradually diminishes in depth, and is altogether lost a mile from the river. Beneath this is a layer of blue clay, 1 foot thick. This is succeeded by a bed of argillaceous limestone: this is seen to outcrop in the bed of a nulla about a mile from the river in a S.W. direction; it is 9 feet 1 inch in thickness, and is occasionally fibrous. Under this is a very thin layer of bituminous shale,* which burns with a yellow flame, emitting a strong odour, and leaving a large residue of white ashes: the thickness of this bed is about three quarters of an inch. It is superimposed upon a second stratum of limestone, 1 foot thick. Below this we have another layer of shale 4 inches deep, followed by a layer of impure limestone and blue clay-rock 8 inches thick, and a bed of bituminous shale 2 feet 1 inch. Then a recurrence of impure limestone 1 foot 9 inches, resting upon sandstone and blue clay 8 $\frac{3}{4}$ inches in depth; these cover another layer of bituminous shale, 1 foot 1 inch thick, which is separated from another layer, 1 foot 3 $\frac{1}{2}$ inches thick, by 1 inch of fibrous carbonate of lime. Limestone, 5 feet 3 $\frac{1}{4}$ inches thick, was next cut through, and found to rest upon black sandy clay 3 feet in thickness, 6 inches of which were pierced previous to suspending the work, so that we have the following deposits succeeding each other from above downwards:—

	Ft.	In.
Alluvium of "black regar" ("cotton soil")	15	6
Blue clay	1	0
Argillaceous limestone	9	1
Bituminous shale	0	0 $\frac{3}{4}$
Argillaceous limestone	1	0
Bituminous shale	0	4
Fibrous carbonate of lime, impure limestone, and blue clay rock	0	8
Bituminous shale	2	1
Impure limestone	1	9
Laminated sandstone, blue clay, and shale	8	0 $\frac{3}{4}$
Bituminous shale	1	6
Fibrous carbonate of lime	0	1
Bituminous shale	1	3 $\frac{1}{4}$
Impure limestone	5	3 $\frac{1}{4}$
Black clay, containing sand.....	3	6
	43	11 $\frac{1}{4}$

There appears to be no decided evidence of the existence of a coal deposit at this spot, the fossils being so very scarce. The vegetable impressions on the shale are too obscure for determination, and it is to be regretted that the fossils are so few and imperfect. There is only one spot from whence they can be obtained, and almost every stone had been examined before my arrival; such, however, as were collected accompany this memoir.†

A water-worn fragment of rock accompanying this communication, but not referred to in Dr. Bell's list of specimens, presented evidence of its containing crocodilian remains. These have been carefully exposed by the chisel, under Colonel Sykes's superintendence, and the specimen has been examined by Professor Bell and Professor Owen, the latter of whom has kindly furnished the accompanying note.

* One specimen of black shale forwarded by Dr. Bell, and marked as belonging to this seam, bears fish-remains.

† The specimens of shale here referred to accompany the series of specimens illustrative of the "Section" and of the rocks in the neighbourhood of Kotah. They contain fragmentary remains of the *Lepidodus Deccanensis*, and amongst them are fragments exhibiting parts of the head and tail of that fish. Unfortunately, however, the indications are too obscure for the purposes of illustration.

NOTE ON THE CROCODYLIAN REMAINS ACCOMPANYING DR. T. L. BELL'S
PAPER ON KOTAH. By Professor OWEN, F.R.S., G.S.

The Crocodilian fossil consists of a mass of dermal scutes, with a femur and some fragments of other bones, firmly cemented together by the matrix. The scutes are for the most part quadrate,—some square, others oblong; they have numerous well-defined and rather small hemispherical pits upon their outer surface, which is flat and without any carinal elevation. In this respect they differ from the dermal scutes of the existing Gavial, in which the pits are relatively larger, more frequently confluent, and the middle of the pitted surface is in most of the scutes raised into a keel.

The characters of the scutes, as well as the length and slenderness of the femur, in the fossil, agree more with those of the *Teleosaurus* and Amphicælian Crocodiles than with the existing Gavials.

NOTES, PRINCIPALLY GEOLOGICAL, ON THE TRACT BETWEEN BELLARY AND
BIJAPORE. By Captain NEWBOLD, F.R.S., &c., Madras Army.

[Reprinted from the Journal of the Asiatic Society of Bengal, vol. xi., p. 929, 1842.—Ed.]

The Notes, of which the following paper is an abstract, were taken during a survey ordered by Government of that line of post road, connecting Bombay and Madras, which lies between Bellary and the ancient Mahomedan capital Bijapore. They commence from Bellary, comprising a line of 164 miles, extending in a north-westerly direction through part of the Ceded Districts, the Nizam's dominions, and the Southern Muratha Country, crossing at right angles the courses of the Tumbuddra and Kistnah rivers as they hasten across the Peninsula from west to east, to add their tribute to the Indian Ocean. The route chiefly lay over a vast undulating plain, constituting a considerable portion of the great plateau that is elevated on the shoulders of the Eastern and Western Ghats, and intersected by a few subordinate spurs, running nearly at right angles with the great lines of dislocation.

From Bellary to Courtney, a distance of eleven miles, extends a plain based on granite and gneiss, penetrated by numerous greenstone dikes. From Courtney to Yailbenchi, four miles, the plain continues, as before, covered with a superstratum of *regur*, or the black cotton soil of India, to a depth of from 1 to 18 feet, in many places resting immediately on the gneiss and granite; in others on an intervening bed of a calcareous deposit, somewhat resembling the travertin of Italy, though more nodular, and called by the natives *kanker*. It is burnt by them for lime. Like rows of flints in chalk, it is seen also in the lower layers of the *regur*, often with sharp projecting spiculæ of carbonate of lime, which would have been broken off had the nodules been drift pebbles. Here and there, on the surface, and partly imbedded in the soil, greenstone occurs *en boules*, indicative generally of a subjacent dike. Angular fragments of both yellowish and reddish-quartz in many places literally strew the surface of the ground, which close to Yailbenchi changes to a red clayey soil; and on examination proved to be the result of the disintegration of a bed of micaceous hornblende schist, with gneiss here rising to the surface. Granite greenstone, and a rock composed principally of a reddish foliated felspar, pierced by veins of the same mineral in a more compact form, and tinged of a delicate green by actinolite, are seen in the walls of the small fort here. The produce of the soil is principally cotton and *juari* (*Holcus sorghum*).

From Yailbenchi to Devasamudrum the *regur* continues covering the surface of the plain, mingled, in greater or less proportion, with the angular *débris* of the subjacent rocks just alluded to; except near the village of Soganhully, where it is interrupted by a bed of a rich red alluvial soil, deposited apparently in this low situation by a number of rivulets flowing easterly from the great tank or artificial lake of Daroji. This rich soil, deriving additional fertility from the water to which it owes its locality, produces rice and wheat, in addition to other grain, and also

sugar-cane. In some places, however, it is impregnated with muriate of soda. A few native salt manufactories, indicated by small mounds on the banks of the rivulets, are visible on the left of the road.

From Devasamudrum, gneiss, with its associated schists, mica, hornblende, and chlorite, constitutes the prevailing rock to the bed of the Tumbuddra. Veins of quartz and felspar cross it in various directions, in which thin seams of an actinolitic felspar, of a lively green, not unfrequently occur. Near Hulhully, on the south bank of the river, a few dikes of greenstone and basaltic trap, containing augite, cut the gneiss in an easterly direction. Calcareous deposits, in the form of a nodular *kanker*, are seen in the rivulets running down the slopes of the plain to the river bed. The soil is *regur*, lying upon the gravelly detritus of the subjacent gneiss, &c., with here and there a thin stratum of *kanker* interposed. The cultivated vegetable products the same as before. The plants, growing wild on the plain, are principally the *Cassia auriculata*, *Mimosas*, *Asclepias gigantea*, and the *Jatropha glandulifera*. The lastnamed plant is almost confined to the black soil. The banks of the Tumbuddra at this point are formed by an accumulation of silt, clay, and sand, brought down by the freshes. The bed is covered with a fine red quartz sand.

The Tumbuddra is crossed by basket boats to Mustoor, the first village in the Nizam's dominions. The plain rises gently as the traveller proceeds northwards to Umaluti, a walled village about twenty-four and a half miles from Mustoor. Between this place and Tawurghirry its surface is broken by the protrusion of a bed of milky quartz, rising into a broken ridge of small hills, from which a gradual but stony descent leads to the decayed town and fort of Tawurghirry. Springs of fine water abound, and, with numerous rivulets, maintain an almost unfailing supply of water. The latter feed the Tumbuddra, the bed of which constitutes the drainage line in this part of the Nizam's territories. Judging from the quantity of *kanker* found on the banks of these tributaries, a large proportion of lime must be conveyed by their means to the Tumbuddra, and thence to the ocean. The *regur* continues to cover the surface of the plain, with but few breaks, from the Tumbuddra to Umaluti, a distance of upwards of twenty-four and a half miles, though not perhaps to the depth seen in many parts of the Ceded Districts. This circumstance might probably be accounted for by the slopes here having a greater angle of inclination, rendering the superincumbent soil more liable to the denuding effects of floods, streams, and the heavy monsoon rains. The *regur* thus becomes blended with the alluvium washed down, and is seen as a stiff greyish mixed clay. Both the alluvial red soil and *regur* are impregnated with muriate of soda and natron. Salt manufactories are seen scattered over the country on the banks of the rivulets. Beyond Umaluti to Tawurghirry the soil consists of the *débris* of granitic rocks, and is sandy, gravelly, or stony, according to situation and state of disintegration. Near the bed of the Tumbuddra, I have before remarked, the subjacent rock is gneiss and its associated schists. Quitting the bed these rocks are less seen, while granite and greenstone constitute the prevailing rocks from Chuloor to Umaluti; the former occurs in bosses, knolls, and detached hills, with tors and logging stones, the latter in dikes and loose *boules*. From Umaluti to Tawurghirry the granite rises in a more decided manner from the surface, taking a south-easterly direction. One of the most considerable of these elevations is a range of hills a little south of the Tawurghirry road, called the "*Caradi Guddi*," from being infested by a number of bears, which are attracted to this neighbourhood by the fruit of the dwarf date that luxuriates in the low moist valley. A bed of white and red quartz assumes the form of a low ridge, covered with jungle, and over which the road passes, called by natives, from its white appearance, "*Pilla Guddi*," and running SSE. Some of the quartz veins intersecting the granite pass into hornstone with a splintery fracture. The granite is crystalline and contains dark mica in scales, hornblende in small crystals, foliated reddish felspar, and greyish quartz in minute angular fragments. Hematitic iron ore exists largely near the bed of quartz; the slope of the ridge towards Umaluti is strewn with the slag and scorix of the furnaces

formerly used for smelting it. 'The Hindus, I am informed, gave them up many years ago, owing to the exactions of their Mahomedan rulers. The agricultural produce of the soil is chiefly juari, cotton, and a little wheat; being at a distance from the river, it is indifferently watered, depending on the dews, springs, and the periodical rains. The majority of the springs about Tawurghirry are brackish; the formation granite, with reddish felspar, in clustered blocks, generally not rising above 20 or 30 feet from the surface. The soil around the town is reddish, arising from alluvium brought down the slopes of the ridge, and the disintegration of the granite rocks in the vicinity. It produces good crops of juari.

A little more than a mile N.W. from Tawurghirry chlorite slate occurs in the bed of a rivulet in nearly vertical laminæ, interseamed with a reddish subcrystalline felspar, having a general direction of E. 10° S. though contorted and waving at various points; the general dip is to the N. About two miles further on a trap-dike intersects the schistose beds, running nearly east and west, and decomposes into a reddish brown soil. Three miles further, near Idlapur, the chlorite, mica, and micaceous hornblende schists appear in the form of low hills, having an irregular direction, but which approaches that of the laminæ of the schists themselves. The chlorite schist predominates, and, losing its chlorite, passes into both a ferruginous and a soft purplish shale, or slate clay, containing much felspar in a decomposing state. The summits of two or three of these hills were crested with a jaspery clay ironstone with cherty quartz in parallel laminæ. A smoke-coloured vesicular quartz is found veining the chloritic slate, and a reddish tough subcrystalline *kanker* is seen in the hollows and sides of the hills. Large masses occur in the roadside, imbedding small nodules of hematitic iron ore, which is profusely scattered in the bed of the rivulets. At Sassenhal, in the bed of a nulla, I found an angular block of a compact rock of a light ochreous yellow colour, having cavities lined with minute yellowish pyramidal quartz crystals. Passing still north-westerly from Idlapur, the hills subside into long wavy swells to Moodianur. The chlorite slate is seen penetrated by a rock of reddish felspar and quartz; in which chlorite is scattered in thin lamellæ, which passes into eurite imbedding minute green crystals of tourmaline. Actinolite occurs in thin veins with quartz, and imparts a fibrous and radiated character to the rock. The direction of the laminæ of the chlorite slate was found to be N. 55° W.; dip $58\frac{1}{2}^{\circ}$, S. 45° W.; general direction of joints N. 10° E.; dip 85° , E. 10° S. The larger beds of quartz conform in direction and dip to the laminæ or strike.

About half a mile beyond Moodianur the left bank of the Ramtar river, running towards the Kistnah, presents a small section of the rock composing the hill, the base of which it washes. It proved to be quartz rock, irregularly tinged with oxide of iron in almost tabular masses, separated by fissures, having the appearance of stratification, dipping to the N. E. at an angle of 13° . As I could discover no interstratified bed of any other rock, I hesitate to pronounce these the lines of stratification. Globular masses of a porphyritic greenstone imbedding reddish crystals of felspar occur on the surface. This bed of quartz rock lies between the chloritic schist and felspathic gneiss, the latter of which is observed about a mile further on, with a similar direction and dip as the former. Veins and beds of a jaspery clay iron ore, with calcareous incrustations, occur in parallel laminæ to the gneiss, which extends into the Southern Muratha Country to Cundigul.

Near Cundigul the chloritic slate again rises to the surface as a cluster of hills, having the same smooth contour as those of Idlapur, and crested with a similar jaspery rock. *Kanker* and calcareous spar occur in the seams; and the surface is strewn with nodular hematite. Many of the specimens of the slate effervesced with dilute muriatic acid impregnated with lime, probably from infiltration of water charged with this mineral. The dip is to the N. 45° E. at an angle of 70° , the strike N. 45° W. Passing over the plain at the foot of these hills about a quarter of a mile from the village of Cundigul, a dike of basaltic greenstone, running E. and W., is traversed. The green chloritic slate in its vicinity acquires a dull blue hue, becomes hard and compact, and splits into prisms having smooth

planes. The contortions of the strata observed at some distance from the dike may be, perhaps, attributed to the intrusion of this rock. Gneiss is again seen in the beds of the Nundawarghi nullas, alternating with mica, hornblende, and chlorite schist. It is red, felspathic, and contains veins of quartz, felspar, and actinolite. The last mineral often occurs in the seams with a compact siliceous felspar, having a lively green colour, sometimes in drusy crystals, and lining the interior of vesicular cavities. A dike of basaltic trap crosses the plain in a west by northerly direction. At the village of Nundawarghi I remarked a number of millstones composed of a fine white and red granular sandstone, the grains of quartz cemented together by a felspathic paste imbedding angular and rolled bits of a dark flinty slate, derived from the slate associated with the gneiss, and of a ferruginous rock. These stones I was informed were quarried at Badami and Jalihal, the price from half to one rupee each. The red felspathic gneiss and associated crystalline schists are seen at intervals as far as Cumblihal, where I encamped in the plain. Here the gneiss becomes granitoid, the red felspar still continuing six furlongs beyond Cumblihal; at the Muddi nulla it is seen alternating with micaceous schist. Dip 60° , E. 20° N. Nodular *kanker* of a faint red, and hematitic iron ore, strew the beds of the rivulets. Near Caradi the granite loses much of its mica, consisting almost wholly of red felspar and greyish quartz, and assumes the character of a pegmatite and graphic granite. The green actinolitic felspar continues to intersect the rock in thin seams. At Coujaganur the Kistnah river is first seen; thence to Danoor, the tappal village near the ferry, the route lies along its right bank, to which the plain declines with a gentle slope, that increases, however, near the river bed. Numerous streams cut the bank in their progress to the Kistnah, leaving intervening swells of ground, and rendering the road, which crosses them at right angles, uneven and difficult to traverse during the rains, when this tract is partially inundated by the river. In consequence of the thick superstratum of mixed alluvial and *regur* soil few opportunities occurred of observing the subjacent rocks. Gneiss, however, was the one most frequently met with.

On the ascent of a low hill a little beyond the small fort of Haverighi a dike of basaltic greenstone cuts the gneiss, running nearly due east and west and slightly distorting the laminae of the latter rock. Several ramifications are thrown off, one of which has a south-westerly direction. The trap here may be remarked splitting into prismatic fragments with smooth planes. The natives take advantage of this circumstance, and employ the stones thus ready formed in building.

In the bed of the river lie nodules of a reddish-brown and white cornelian, chert, jasper, calcedony, cacholong, semiopal with linear curved and angular declinations, and mocha stones. The pellucid pebbles are sometimes surrounded with an opaque *enduit* which adheres to the tongue, mealy externally, but hardening as it approaches the nucleus. The fracture of the inner part is semiconchoidal, hardness from six to seven of Moh's scale. Fragments of a dark-coloured basaltic rock still adhere to these pebbles, which, together with their water-worn rolled exterior, indicate them to have been transported from the trap amygdaloids to the west. The swollen state of the river prevented any observation which the section of its bank might have afforded. The sides of the ravines, however, presented gneiss, with both white and red felspar interstratified with micaceous hornblende schists. The latter has a fine and almost slaty structure, brilliant lustre, is easily worked, and split by the natives into long slabs for the purposes of building. Iron pyrites are disseminated. A trap dike running to the east is crossed a little beyond Muddur. The strike of the gneiss, &c., though contorted in some places, runs E. 30° S., and dips at an angle of 60° to N. 35° E. The surface of the left bank is much the same as that of the right; it is covered with pebbles brought down by the river; among them I observed a water-worn bit of a grey limestone, probably brought down by the Kistnah from the plain at the base of the Western Ghats.

It may be remarked *passim* that the Kistnah is one of the most considerable rivers of India. It rises among the Mahabaleshwar Hills, near the western coast, a little to the S.W. of Sattara, and, after crossing the peninsula in an east by

southerly direction, falls into the Bay of Bengal at Sippelar Point, a little to the S. of Masulipatam. During a course of about 700 miles it receives the waters of the Yairly, the Warda, the Gutpurba, the Malpurba, the Bhima, the Tumbuddra, and the Hyderabad or Mussy rivers. Its breadth from bank to bank at Danoor, previous to its junction with the three last streams, as taken by trigonometrical measurement by my friend Lieutenant Kinkead of the Artillery, and myself, was found to be 1,918 feet. The current was running rapidly, carrying the round wicker basket boats in which we crossed a considerable distance down the stream, in spite of all the efforts of the boatmen.

Accumulations of mud, silt, and sand are daily progressing on the banks, entombing the remains of alligators, fish and fluviatile shells. This river is thought to be richer in gems than any other stream in India. As it flows through the Palnad Circar, diamonds, cat's-eyes, onyxes, and calcedonies occur in its alluvium; also a small portion of gold dust at Paugtoor, in the Nizam's dominions. Near the frontier of the Ceded Districts beautiful agates are found. Not far from its mouth are some of the diamond mines for which Golconda is celebrated, and at Paugtoor it abounds with amethystine quartz.

After leaving the bed of the Kistnah the plain rises gradually to the north. On the slope lie some scattered blocks of a fine-grained granite, composed of crystals of reddish felspar, quartz, and a black glittering mica in minute plates. The superstratum of soil beyond the alluvium of the river is red and quartzose. Passing in a west by northerly direction we reach a long low descent, which slopes gently to the west, to the bed of the Hirri, one of the tributaries to the Kistnah; from this the ground again rises with an almost imperceptible ascent to the west, forming a shallow valley running almost due north. The Hirri river follows its course from Bagwari, flowing southerly to the Kistnah, into which it debouches a little above its junction at Capila Sungum with the Malpurba. It forms the principal line of drainage of an extensive and fertile tract. Our route lay on the left bank of the stream. In the lower or more southerly part of the valley a felspathic zone, extending in an easterly direction and several miles broad, is crossed. This rock varies in lithological character, in some places assuming the form of a pegmatite, at others that of a protogine, being combined with quartz and chlorite. A few loose and imbedded blocks of a granite similar to that found on the north bank of the Kistnah occur, rarely, without rising to any considerable height above the surface. The felspathic rock, observed in sections presented by the deep nullas running down the slope of the plain, has a pseudo stratiform appearance, arising from nearly horizontal joints, which might be mistaken for the lines of stratification. It continues as the surface rock as far as the village of Gurdinny, near which it is overlaid by beds of a friable trap, approaching wacke, with an obscurely schistose structure, and penetrated by veins of an earthy carbonate of lime, calc spar, and quartz in crystals. It rises near the village into a small knoll, down whose declivity runs a rivulet, in the bed of which the first section of the great overlying trap formation of the Deccan met my eye. Depositions of *kaner*, both in beds on the surface, and veins penetrating the fissures in both rocks, occur in abundance; it is found in a pulverulent and concrete state; the nodules are not so crystalline as those that are seen in the vicinity of the older trap dikes, which penetrate the granite and gneiss of the Carnatic, the Ceded Districts, and Mysore.

About two miles to the north, on the rising ground on which stands the little fort of Beylhal, the road is literally paved with the *boules* of trap, which, exfoliating in concentric lamellæ, leave circular and oval nuclei; the latter, in their turn, however hard and compact, evince a tendency to a similar process of disintegration. This gives a singular appearance to the surface of the road where the rock is uncovered by dust, presenting a surface paved, as it were, with mere pebbles of compact basalt set in concentric rings of wacke. The nuclei remain prominent, from their superior hardness. Calc spar of various shades of white, green and pink, calcedony in perforated nodules, and in geodes exhibiting concentric annular delineations, and lined with minute crystals of quartz, semi-opal, and jasper, occur in veins imbedded in wacke.

At Umblanur, a walled village in the jaghir of the Muratha chief Punt Pritti Niddhi, about three miles north from Beylhal, I found the nuclei to consist of a hypersthenic felspar, imbedding crystals of augite; fracture small-grained, uneven; streak greyish-white. Bits of a dark flesh-coloured eurite, and a porphyritic rock composed of crystals of dark dull green hornblende, imbedded in a paste of a faint bluish-green felspar, exceedingly tough under the hammer, occur in the plain. I searched, but in vain, for these rocks *in situ*; although, judging from the sharp angles of some of the fragments, their proper locality cannot be far distant.

From Umblanur, still proceeding northerly, to within three furlongs from the town of Bagwari, the route continues along the left bank of the Hirri. The trap is observed in the nulla beds to undergo many changes in texture and colour, even in the space of a few yards, from a compact heavy basalt to a friable wacke; from globular to schistose; from black to red and a light brownish-speckled grey. The laminae of the schistose variety are often intersected by transverse fissures, which divide the rock into rectangular and rhomboidal prisms, similar to those observed in clay-slate near the line of contact with a basaltic dike. These, again, by the agency of the mysterious law of crystallization, which is manifested, in a greater or less degree, in both ancient and modern trappean rocks, from the microscopic atoms of augite and hornblende to the prodigious pillars of Staffa and the Giant's Causeway, often assume a pentagonal and hexagonal shape by exfoliation. By process of further exfoliation the angles are worn away, and the prisms assume a globular appearance, which has led some observers to imagine them to have been erratic boulders subjected to the rolling action of water, or, from their abundance and the augite often found in them, to have been showered down on the surface by volcanic agency. Near Bagwari the beds of the streams abound with *kanker*, indurated ferruginous clay, fragments of red and yellow jasper, trap, amygdaloid, and a few nodules of calcedony; the concave surface of the botryoidal varieties of this mineral not unfrequently exhibit a succession of pentagons and hexagons.

From Bagwari to Mangoli the route lies over plains, the lowest stratum of which, as seen in wells to the depth of 20 to 50 feet below the surface, and beds of nullas, is the overlying trap. About two miles N.W. from the former place it is overlaid by a sheet of a conglomerate composed of a nodular and pisiform iron ore, and fragments of ferruginous clay imbedded in a travertine-like paste of carbonate of lime, coloured of a light ochre-brown by oxide of iron. The bed of a nulla presented the only section (of this stratum); it was here four feet thick, covered by a layer of black cotton soil or *regur*, and resting immediately on the concentric exfoliating trap, which was penetrated by seams of a whiter and more earthy carbonate of lime, as shown in the right-hand corner of the plan.

Large masses of a lateritic rock, cemented together by calcareous and ferruginous matter, and having a smooth shining *enduit*, which imparts a glazed appearance to the surface, occur in the calcareous conglomerate. The extent of the latter, owing to the thickly covered nature of the soil, I was unable to trace; but it is met with at various places between Bagwari and Mangoli, and most probably continues almost uninterruptedly, overlying the trap for the greater part of the distance, viz., twelve and a half miles. Near Mangoli the trap again appears as the surface rock, seamed however, and almost broken up, by the immense quantity of calcareous matter penetrating between the laminae. The lime is seen to take up some of the colouring matter of the augite or hornblende of the trap, and is stained of a mottled green and brown. The trap exhibits superficial dentritic appearances, generally dark brown, with yellow or brownish ground on the smooth surface into which it readily divides on being struck with the hammer. This facility of division arises from natural microscopic fissures pre-existing in the substance of the rock, sometimes visible to the naked eye. The fragments are of different shapes, but almost invariably angular, and frequently prismatic. The trap varies from a compact black and phonolitic basalt to a loose light-grey wacke, specked with minute ferruginous spots, and still preserves both the laminar and globular forms described above. Veins of a reddish colour, without any definite direction, are observed intersecting it. Their composition does not appear to vary much

from the dull brown-grey rock that forms the prevailing colour of the trap in this vicinity, except in being more ferruginous. Deep and nearly vertical fissures, dipping generally to the W. 70° S., cleave its tables in a direction N. 25° W. A number of small vesicular cavities pervade its structure, the axis of whose longest diameter is generally N. and S., and may be received as indications of the course here taken by this great *coulée* of trap.

EXTRACTS FROM THE SUMMARY OF THE GEOLOGY OF INDIA BETWEEN THE GANGES, THE INDUS, AND CAPE COMORIN, BY H. J. CARTER, ESQ.

Granite.—Huge masses of a compressed round or cuboidal figure, heaped upon each other irregularly or in columnar piles and erratic blocks, compact, or undergoing concentric laminar decomposition *in situ*, or in detached portions, form the grand characteristic features of this formation in India as well as elsewhere; and as it appears to exist more continuously, and to a greater extent, in the neighbourhood of Hyderabad than in any other district, so its features are perhaps more strikingly developed in this than in any other part of India. Voysey states that on quitting the banks of the Kistnah granite alone, chiefly of a red colour, is the basis of the country to the Godavery. Red felspar seems to be the predominant ingredient in the secondary plutonic rocks throughout India. The granite which veins the metamorphic strata appears to be principally red, though not always, for at the falls of Gairsuppa it is grey, and sometimes it is red in one part of the vein and grey in another (Voysey); while at Goontacul, near Gooty, a still younger red granite is seen to vein the older secondary one (Newbold). Captain Jenkins mentions a grey granite at Ranteek, in the hills N.E. of Nagpore, composed chiefly of whitish felspar in very large crystals, which is traversed “three or four times” by granitic veins, the granite becoming finer in structure, and redder as it is more recent. Red granite, however, is far from being exclusively the colour of the secondary granites, though it seems to be the most prevailing one.

Like the granitic, the greenstone rocks vein and dike the metamorphic strata almost everywhere, and coming after the former vein them also, while they are in their turn cut through by the trappean rocks.

As before stated, their greatest continuity is seen in mural ridges, and not as overlying rocks. They occur extensively both in the granitic district of Hyderabad, and throughout the peninsula (Malcolmson and Newbold). Some dikes have been traced for twenty miles continuously (Newbold). About Hyderabad they are from 100 to 300 feet broad, and may be traced from fifteen to twenty miles, occasionally spreading out a little (Voysey). About four miles south of Dhonee, between Gooty and Kurnool, there is a basaltic greenstone dike, 150 feet high and 200 feet broad, running through a range of sandstone and limestone mountains (Newbold); and near the village of Bunkapilly, within four miles of the Munjira, as well as on the banks of the Munjira itself, Voysey saw a “greenstone or sienitic greenstone” veined with granite, the granitic veins being in some parts red, in others white, and projecting two feet beyond the weathered surface of the greenstone. This must not be set down, however, as an instance of granite veining greenstone, for the genuineness of the latter is by no means apparent, from his calling it “greenstone or sienitic greenstone.”

FURTHER ACCOUNT OF THE BORING AT KOTAH, DECCAN; AND A NOTICE OF AN ICHTHYOLITE FROM THAT PLACE. By Dr. T. L. BELL, Surgeon, 3rd Nizam's Cavalry. Communicated by Colonel SYKES, F.R.S., F.G.S.

[Abstract.]

In the August number of the Quarterly Journal of the Society for 1852 (vol. viii., p. 230 [see also *ante*, p. 303]), is an account of the boring lately made at Kotah, in the Deccan, in search of coal; and at p. 272 [*ante*, p. 301] of the seventh volume of the Journal is an account of the fish (*Lepidotus Deccanensis*) from the bituminous shale met with in the boring. In the present communication Dr. Bell states that, on account of the washing in of the soil, it was found

PHYSICAL FEATURES AND NATURAL PHENOMENA.

necessary to make a new bore. After taking precautionary measures, by constructing a wooden shaft through the alluvium, the boring was carried through the 27 feet of limestone, shales, &c., that were penetrated the previous year (1851), and a further depth of 64 feet 11 inches attained. This consisted of—

	Ft.	in.
Limestone.....	23	0
Blue clay	7	6
Limestone	2	0
Shale and clay	1	9
Limestone (more compact and crystalline)	1	8
Blue clay and shale	12	0
Red clay penetrated to the depth of.....	17	0

An Ichthyolite having been found in a state of limestone from the loose mass by the river side, noticed in Dr. Bell's former paper (*loc. cit.*), and which Dr. Bell regards as having been forced up by the action of the river, it has been forwarded to England by General Fraser; and Colonel Sykes having submitted the specimen to Sir P. Egerton, he was favoured by Sir Philip with the following opinion respecting the character and relations of the Indian fossil: "It belongs to the section of the genus *Dapedius* with single-pointed teeth;—*Tetragonolepis* of Agassiz—not of Bronn. It appears to be a new species, differing from those hitherto described in the ornamental pattern of the scales. It is an Oolitic form, probably of the age of the Lias."

Colonel Sykes proposes to name the second Oolitic fish from the Deccan, *Dapedius Egertoni*. (Quart. Journ. Geol. Soc., vol. ix., p. 351.)

ON TWO NEW SPECIES OF LEPIDOTUS FROM THE DECCAN. By Sir P. DE M. GREY EGERTON, Bart., M.P., F.R.S., F.G.S.

The discovery of the remains of fossil fish in the table-land of the Deccan was first brought under the notice of the Geological Society in 1851 by Colonel Sykes [*antè*, p. 301]. The only specimen he had then received sufficiently perfect for description proved to be a new species of the genus *Lepidotus*. In the course of last year [*vide supra*] further specimens were received from the same district, but apparently from a different bed, which indicated a new series of the genus *Tetragonolepis* of Agassiz, now *Echnodus*.

The specimens described in this memoir were sent to me a few days since by Colonel Sykes. They are bedded in a similar bituminous shale to that containing *Lepidotus Deccanensis*, and are stated to have been found in the same locality. They are both clearly distinct from that species and from each other, although they all possess in common the characteristic of the Liassic section of the genus *Lepidotus*.

Lepidotus longiceps, Egerton.

There are two specimens assignable to this species—one much mutilated, the other very perfect with the exception of the tail. The length of the latter fish is 9½ inches; of this the head occupies within a fraction of 3½ inches, or more than one-third. The greatest depth of the body is 3 inches. The form of the head is elongated, and the nostril portion is more acutely produced than is usual in this genus. The lower jaw is of equal length with the upper jaw, and they are both armed with similarly proportioned teeth, of a conical form; those in the anterior portion of the jaws being more elongated than the more remote ones.

The cranial and opercular bones are of considerable thickness, and are invested with a very compact enamelled casing. Small isolated granules of shining ganoine are irregularly scattered over their surface. The preoperculum differs from the other opercular plates in having a more rugged and uneven surface.

The bones constituting the thoracic arch are of considerable substance, more especially the coracoid bone, which is very strong and flattened out at its posterior margin. Immediately behind the humeral bones two or three broad irregularly-shaped scales occur, coarsely notched on their hinder margins, and covered with an unusually thick coating of ganoine.

The pectoral fins are about 2 inches in length. The rays composing them are numerous, but not remarkably strong. The ventral fins are inserted about half-way between the pectoral and anal fins. The latter fin is situated near the tail. It is composed of ten rays, the anterior one being fringed with a set of oblique osselets along its border. The rays have frequent transverse articulations, and are much subdivided in the expanded portion of the fin.

The dorsal fin, as generally happens in this genus, occupies a remote position, commencing at a point behind the insertion of the ventral fins, and extending beyond the anterior rays of the anal fin. It contains twelve rays, corresponding very closely in form and dimensions with those of the anal fin. A similar bordure of fulcral osselets characterizes the anterior ray. Nothing remains of the caudal fin save two or three of the elongated scales indicating the commencement of its superior lobe.

The scales are for the most part smaller and more rectangular than those of *Lepidotus Deccanensis*. The dorso-ventral series contain about twenty, the longitudinal series about thirty. On receding from the head they gradually lose their rectangular outline and become more and more rhomboidal. A few scales in the vicinity of the coracoid bone are considerably larger than those in any other region of the body. Where the outer surface of the scale is preserved it is seen to be distinctly radiated, and pectinated on the posterior margin.

In general appearance this species, although belonging to the more elongated group of the genus, is not so slender as *Lepidotus pectinatus* or *Lepidotus Deccanensis*. Its most striking feature is the unusually large proportion of the head to the total length. This peculiarity serves to distinguish it from all the species hitherto described, and has suggested the propriety of the specific appellation.

Lepidotus breviceps, Egerton.

The evidence of a second species of *Lepidotus* among the ichthyolites recently received by Colonel Sykes is pretty clear, although the specimens affording it are deficient in many details. One specimen and its counterpart contain a head and a small portion of the body; another specimen shows the impression of the trunk as far as the base of the tail, and its mutilated counterpart contains the base of the skull, and the scales of the anterior and middle portion of the body. With the exception of a few scattered rays all the fins are wanting.

The length of the fish from the nose to the base of the tail is 7 inches, the greatest depth being $2\frac{1}{2}$ inches. The head measures $2\frac{1}{4}$ inches, or less than one-third of the entire length. It will be seen, on comparing these dimensions with those of other species of *Lepidotus*, that this is one of the smaller species of the genus.

In general form it very much resembles the American genus *Ischypterus*; and indeed in size it corresponds pretty nearly with the larger specimens of *Ischypterus fulvus*. The muzzle is pointed, but not so acutely as that of the species last described; the maxillary and facial bones are shorter, but the opercular bones are proportionately larger. The form of the trunk is remarkable for the vaulted outline of the back in front of the position of the dorsal fin. The opercular bones are more profusely ornamented than those of *Lepidotus longiceps*. Although a few similarly isolated granules occur here and there, these are associated with a surface ornamented of larger grains, which in some places become confluent. The preoperculum has nevertheless a more even surface than in that species. The maxillary bones are shorter, and the teeth less elongated. The frontal bones have a coarsely corrugated exterior, beset with pustuliform grains of larger size than those on the surface of the opercular bones. The coracoid bone is less flattened than in the former species. The scales are small in size, and are entirely devoid of pattern on their surface; nor have they any serrations on the posterior margin. In these respects they afford a good distinctive character from those of *Lepidotus longiceps*.

In addition to the specimens enumerated above, from the bituminous schist, the collection contains a fragment of a large *Lepidotus*, apparently from a bed of

compact argillaceous limestone, similar to that containing the specimen of *Achnodus Egertoni* described last year.* This may possibly indicate another species.

It may be worthy of remark that the genus *Lepidotus* has the most extensive geographical range of any genus of fossil fish with which we are acquainted. It has representatives from England, several localities in France and Germany, from Switzerland, the Tyrol, Lombardy, Naples, Greece, the Brazils, and from Central India. Its stratigraphical range is also extensive, viz., from the Lias to the Calcaire Grossier, both inclusive.

DESCRIPTION OF PLATE XII.†

Fig. 1. *Lepidotus longiceps*, nat. size.

Fig. 2. *Lepidotus breviceps*, nat. size.

Note on the Fossils from Kotah, Deccan.

The ichthyolites above described were forwarded to Colonel Sykes by Dr. T. L. Bell in the summer of 1853; and in a letter, dated July 12th, 1853, Dr. Bell states that these specimens were taken from the same spot at Kotah from which those previously sent were obtained.

The specimens of bituminous shale contain, besides the fish-remains, some coprolites and traces of plants. There are also four specimens of impure limestone with fish-remains (*Lepidotus* and *Achnodus*).

Some small pieces of a reddish friable coarse sandstone or grit containing obscure traces of wood accompany the above, and are mentioned as having been obtained about 200 yards further up the river, where this is the surface-rock and rests upon limestone. The specimen sent of the latter is similar to the limestone with fish-remains above mentioned, and to that referred to in the former notices.

Dr. Bell also forwarded with the above several fragments of dark clay-slates, and of a black micaceous quartzzy schist, with a coarsely-wrinkled surface and obscure vermiform markings. These specimens, he observes, "were collected fifteen miles N.E. from Kotah, at the foot of a range of hills 400 feet high whose general direction is parallel to the other hills at Kotah and in the surrounding country, but with an underlying stratum of clay-slate, which has a dip directly opposite to that of the underlying strata at Kotah. This clay-slate is very extensive. I traced it until it was lost beneath the sandstone range. The layers composing it are extremely fissile, and break up into rhomboidal masses soon after exposure. I observed, while tracing it, evidence of disturbance in the form of a fault in one case and a bend in another, separated from each other by about 800 yards." (Quart. Jourl. Geol. Soc., vol. x., p. 371.)

INTERTRAPPEAN LACUSTRINE FORMATION.

At first it would appear useless to follow Voysey through this journey in the hope of identifying his bed of "oyster shells" in limestone with the intertrappean lacustrine formation, on account of no allusion having been made to the "shells at Miaglah Condee," from which he states "they appear to differ very little," in any other part of his journals. But when we observe the close resemblance, both in name and permutability of spelling, that exists between "Miaglah Condee" and "Muklegandy," by which the pass leading into the valley of Berar from the Nizam's territories is called, and connect this with the fact that at Hutnoor, in this pass, Malcolmson saw the lacustrine limestone strata richly charged with what he then conceived to be shells of "*Ostrea* and *Cardia*," but which afterwards proved to be *Unio Deccanensis*, &c., resting on "reddish granite," that which seemed to be hopeless of explanation appears to be perfectly intelligible, and the identity in name and geological formation complete. When, also, we consider that Voysey did not recognize the lacustrine nature of these shells any better than Malcolmson; that the only bit wanting to complete his itineraries is that between Hyderabad and Nagpore, while Colonel Lambton's northernmost station in 1819 was Shivalingapay, near the south bank of the Godavery, not far from Nirmul, where the Muklegandy pass commences; and that in 1822 he had carried his triangulation across the

* *Tetragonalepis Egertoni*, Sykes; vide supra.

† See Quart. Journal Geol. Soc., vol. x.

HYDERABAD AFFAIRS.

valley of Berar to Ellichpore ; there is every reason to believe, from the nature of the country, that he carried it through the Muklegandy pass, and that Voysey, who was attached to his survey, had then plenty of opportunities, which he never allowed to escape him, of witnessing among the portions of the lacustrine formation which is here exposed in several places, the very limestone strata and its numerous *Unios* which Malcolmson himself saw in marching through this pass in 1835. But, as I have before stated, this part of Voysey's journal is unfortunately wanting, and the only place where he seems to allude to this locality is in his last notes between Nagpore and Calcutta, where he mentions the place in question, "Maiglah Condee." Colonel Lambton died at Hingan Ghat, on his way from Hyderabad to Nagpore in January 1823, and Voysey left the latter place or its vicinity for Calcutta in February 1824 ; but he states, in his "Report of the Geology of Hyderabad," that he had seen shells in the trap of Medcondah and in the wacken of Shivalingapah ; and in his account of those which he saw in the Gwailghur hills, in April 1823, he mentions that he communicated in June 1819, as has before been stated, in a report to the Marquis of Hastings, the fact of their existence in Medcondah, though we cannot trace him in his journals to either Medcondah or Shivalingapah. Again, it is evident, from the concluding part of his paper on those of Gwailghur, that he had seen fresh-water shells of the intertrappean lacustrine formation in more places than he has mentioned.

Besides, who has yet seen anything like "beds of oyster shells" in limestone or calcareous strata in the interior of India, and what indications are there of such a deposit existing there in the formations hitherto described ? None that I can see. Thus everything tends to the conclusion that Voysey's limestone strata with oyster-shells at Doorroog and the other places mentioned on his way to Sumbulpore were parts of the deposit under consideration.*†

* *Miaglah Condee* and *Muklegandy* are almost undoubtedly the adjectival forms of *Mughul*, viz., *Mughuli* or *Mughuliya* ; and *Condee* or *Gandee* that of *Condah*, a common Telingi terminal affix to places in this part of India ; while the Hyderabad country is called by the Mussulmans *Mughlai* ; and then *Miaglah Condee* and *Muklegandy* pass would mean the *Mughli Condi* pass (pronouncing the vowels as in Italian), or the passage from the valley of Berar into the *Mughlai* country. At the same time it is not improbable that the third stroke of the *m* in the MS. has been mistaken for an *i* by the compositor, and that this has led to the strange spelling "*Miaglah*," which has such an uncommon orthography that it seems that it must be incorrect. I am not an advocate for this kind of reasoning in scientific inquiry, and therefore only add these observations for what the reader may think them worth in connection with the facts above stated.

† This question so far as Doorroog is concerned has since been decided by the Rev. Mr. Hislop in quite another way, the "beds of oyster shells" being nothing more than organic appearances caused by "the peculiar concretinary structure of the rock ;" see *ante*, p. 249.

COAL IN THE DECCAN.

REPORT by G. F. H. HEENAN, Esq., Superintendent, Kummum Coal Fields, compiled from official records, and supplied to M. H. WILKINSON, Esq., Secretary to Government, P. W. D., Hyderabad.

Coal was known to exist many years ago in several places all along the right banks of the Wurdah and Godavery, which rivers form a part of the northern and eastern frontiers of His Highness the Nizam's dominions, but no attempt at exploring the country by means of borings was undertaken with any degree of success until February 1871, at which date a party was despatched from Hyderabad by H. H. the Nizam's Government, consisting of one European and two East Indian Borers, besides several native assistants, all of whom were placed under the orders of Mr. White, one of the Executive Engineers belonging to H. H. the Nizam's Public Works Department. The first two borings put down by this party proved unsuccessful, and towards the latter end of May Mr. White was obliged to return to Chandah (which is situated on the left bank of the Wurdah, in British territory) owing to the death of Mr. Coulson, the English Borer, and to sickness having broken out among the other members of his staff.

In July of the same year work was again resumed with vigour, and a seam of coal was met at the depth of sixty feet from the surface, close to the right bank of the Wurdah, and about two miles west of the town of Rajore. Several other borings were put down in this neighbourhood, varying in depth from fifty to a couple of hundred feet, and in most of them coal was found to exist, but the seams proved to be very inconstant in thickness throughout. Two shafts were sunk in this coal basin (which is known as the Sasti field), under the supervision of Mr. Taylor, Coal Viewer to His Highness the Nizam's Government.

The Salar Jung shaft, which is the largest, is down to the bottom of the coal, a depth of ninety-one feet, having galleries running out at each side, from which a portion of the coal has been excavated, and the smaller shaft is sunk to the depth of fifty feet from the surface. Mr. Taylor estimates that this basin contains upwards of two million tons of workable coal, of a good quality for Indian produce.

The Duptalla basin lies adjacent to the Sasti field, but is of much less importance, as the coal found is inferior in quality. On this account the examination of the ground was restricted, but one shaft was sunk to the depth of sixty feet, and several borings were put down varying in depth from sixty to one hundred and seventy feet, and the quantity of workable coal is estimated at about three million tons approximately.

The Paoni field, which in all likelihood will prove the finest deposit of the three, lies between five and six miles west of the town of Rajore, and has been tested by borings varying in depth from fifty to two hundred and eighteen feet, and an average thickness of forty feet of coal has been discovered, but it extends only over an area of one-eighth of a square mile; here the amount of available coal is not above two million tons.

On summing up the aggregate quantity of available coal proved to exist, in the three basins alluded to in the foregoing paras., we have a grand total of seven million tons of workable coal, which Mr. Taylor estimates can be raised to the pit's mouth for about five rupees per ton, but most of this coal might be excavated at less cost if it were not for the strong head of water that has to be contended against. A large quantity of coal has been excavated from the shafts of the Rajore and Sasti coal fields, for the purpose of thoroughly testing its quality, a portion of which having been sent to England was pronounced by competent men there to be but little inferior to our Newcastle coal in steam properties, and the tests made of the same coal by the P. and O. Company prove it to be well suited for sea-going purposes. It has also been tried on several of the engines belonging to the G. I. P. Railway, and the drivers were of opinion that the small quantity they consumed was not inferior to any of the Indian coals in present use.

Judging by these comments, and the experiments made upon this coal, if sale could be obtained at present, it would be found to give general satisfaction, not only to the proprietors and purchasers of the coal, but to those men whose daily duty brings them into close contact with it, and from whom bitter complaints regarding the country coal have been so frequently seen in the public journals of the day.

The most serious impediment to the present mercantile value of this field is the total absence of water carriage, that being the only means by which this coal can be profitably brought to a market. So, for the present at least, this mine of hidden wealth must remain buried, and be practically useless to mankind, but when the line of railway between Hyderabad, Chandah, and Wurdah, now in contemplation, becomes an accomplished fact, and the present tedious journey from Bangalore and Hyderabad to Calcutta and the Punjab is shortened by several days, then may we expect to see the Rajore Sasti coal field the source of a fair revenue to His Highness the Nizam's Government, and that portion of His Highness's territory, now little better than a wilderness, transformed into a flourishing and highly cultivated district.

KAMAWARAM.

During 1871 several men commenced a search for coal throughout that wild tract of country situated to the east of the large town of Hanumcondah, in the Kummum District, owing to a reward being offered by the Nizam's Government for its discovery.

One man of the Bunya caste, more fortunate than his fellows, found rather an extensive outcrop of coal in the bed of a nullah within a few miles of the village of Kamawaram, and thirty miles east of the well-known Pakal Lake. At once upon making the discovery he reported his success to the Government, and in due time a handsome reward was granted both to him and several of the villagers of Kamawaram, whom, it was said, he cajoled into pointing out the place, by showing them a piece of coal he carried about with him and stating he required some more of the same kind of stone for medicinal purposes. Immediately upon the Government receiving intelligence about this new coal field, Mr. McFarlaine, Executive Engineer, Kummum District, was ordered to visit and report upon the locality, and on the strength of this gentleman's report an exploring party was soon afterwards despatched to that part of the country.

In February 1872 Mr. Heenan, Superintendent, Kummum coal fields, received instructions from the Secretary to H. H. the Nizam's Government to proceed to the Kummum District, and make a close examination of that region where coal had been discovered, and accompanied by a large staff he arrived in the neighbourhood of the Pakal Lake in the early part of March of the same year. Upon leaving the banks of the abovenamed lake and proceeding eastward, the jungle track (for it does not deserve the name of a road) runs through a wild and rugged district the general elevation of which is between ten and eleven hundred feet above the sea. The appearance of the country to the north and south of the path is both dreary and desolate, and, owing to the dense forest and low scrub jungle, it is quite impossible to get a view of the surface of the ground for more than a few hundred yards in any direction.

Upon arriving at Kamawaram, which is the nearest village to the coal field called by that name, it was found situated in a small open plain in the very heart of a dense forest. The position of the coal field is about six and a half miles north-north-west of the village before named, and lies in a deep valley between two steep ranges of hills, mostly composed of Kamthi, Damuda, and Talchir sandstones. The upper edges of three coal seams are well exposed in the bed of the Paugadi vogu (the course of which lies between these hills), dipping southward at an angle of between 35° and 40° , with the strike running north-west and south-east. In this particular place the course of the stream is very irregular, in consequence of which the outcrop is only exposed at intervals, but from the point where it is first visible to the last place where it crops out, a distance of one and

a half miles down stream, the upper seam exceeds a thickness of eight feet, but the two lower ones are rarely more than a few inches thick, and of no commercial value whatever.

Several borings have been sunk throughout the field, varying from forty-five to one hundred feet in depth, and in most of them coal was struck. The top seam proved in most cases to be of the same uniform thickness as it is where exposed at the surface, but the lower ones for the most part are nothing more than thin layers of shaley matter. The area of this outlier of coal-bearing rocks does not exceed one hundred and sixty acres, and taking an average thickness of eight feet of coal throughout, deducting a third for pillars and waste, will yield about two million tons of workable coal, which upon being tested has been proved to be of a slightly superior quality to that of the Sasti field.

This coal field labours under greater disadvantages than any yet discovered in H. H. the Nizam's territory. In the first place, it lies in the midst of a very hilly and broken country, remote from any of the large towns through which a line of railway is at any time likely to pass, and between it and the nearest navigable river, the Godavery, there lies a wild mountainous and unpopulated district of many miles in extent. In the second place, the dip of the coal is exceedingly high, and another fact which will add considerably to the cost of working the coal is that the outcrop for the greater part of its length is exposed in the bottom of the nullah, causing the water that remains in the stream to lie on the top of the seams, filling the measures from outcrop to the full depth, and, taking into consideration the small quantity of available coal which exists in the place, it will not prove profitable either to Government or a company to work it.

In the present wild and uncultivated state of this neighbourhood, work could only be carried on from January until the beginning of July, as during the remainder of the year this district is one of the most unhealthy and fever-stricken in the whole of the south of India ; so in all probability the Kamawaram field will prove of little value to His Highness the Nizam's Government for many years to come.

BOLLAPULLY.

In the beginning of July 1872 it was reported to Mr. Heenan that coal had been discovered by one of the Koi people in a chain of hills lying some sixteen miles east of Kamawaram.

Upon receiving this information he, accompanied by several of his staff, proceeded to the neighbourhood where the outcrop of coal was found. The most direct route from Kamawaram to Bollapully, which is the nearest village to the coal field, passes through a rough and hilly region, completely covered with forest and thick low scrub jungle, and at intervals the path crosses very deep ravines, which render it dangerous for horses, and quite impassable for wheeled conveyances of any kind. Upon leaving Bollapully, which is about three and a half miles north-west of the hills where the newly-discovered coal exists, the path crosses the bed of the Kumersani river, and, passing over a couple of miles of broken and much disturbed ground, enters the bottom of a deep ravine, at the head of which the coal is exposed in a small cave having about seventy feet of superincumbent sandstone forming its roof. The lower portion consists of the Damuda and the upper Kamthi sandstones, with a thin layer of laterite at the surface.

The summit of the hills which form the valley where the outcrop is exposed consists of a very extensive plateau, stretching far away to the eastward, with large detached masses of sandstone occasionally strewn about. Owing to the great difficulty of procuring water during the months of March, April, and May, very few people reside in this region, and if this field should ever be worked great difficulty will be experienced in obtaining supplies and water. Where the outcrop of coal is exposed it is six feet in thickness, dipping to the eastward at the easy angle of about three degrees ; as, however, such a small portion of it is visible, and the rocks round about are much broken and disturbed, it was impossible to form any estimate of the probable extent of the seam ; but, since the carboniferous

formation is everywhere exposed in the neighbourhood of the outcrop, it may prove to be very extensive, but owing to the working season being far advanced, and many members of the exploring party suffering severely from jungle fever, it was found impossible to make a thorough examination of the neighbourhood.

Some of the coal was tried in an open fire, and found to burn with a bright flame into a white ash, leaving no slag whatever. The nearest point of the Godavery is about twenty-two miles from the field, and a light line of railway might easily be constructed, at a comparatively small cost, by which the coal could be conveyed from the mines to the river, and thence by water to the east coast, but this outlay would be useless at present, as other fields far superior in quality, and of a much greater extent, have recently been discovered in close proximity to that river, and many miles nearer the market, which in all likelihood before long will monopolize the entire coal trade from Calcutta to Point de Galle.

SINGARENNY COAL FIELD.

The Singarennny coal field was discovered in March 1872, by Mr. W. King, of the Geological Survey of India, and he at once reported the existence of coal in that region to H. H. the Nizam's Government, and at the same time strongly recommended that the locality should be tested by borings, as he was of opinion that the field would prove a very extensive one. (See Geological Records of India, No. 2, 1872.)

In October of the same year Mr. Heenan was ordered by His Highness's Government to proceed to Singarennny and closely examine and test by borings all that district referred to by Mr. King in his report, and ascertain as accurately as possible the extent of the field. In the latter part of November he and his staff arrived at the site of operations, where work was immediately commenced. This outlier of plant-bearing rocks has been designated by Mr. King "the Singarennny Field," owing to the village of that name being the largest in the neighbourhood, and by this name in all likelihood it will be known for many ages to come.

It is situated between the parallels of $17^{\circ} 30'$ and $17^{\circ} 40'$ north latitude, and $80^{\circ} 18'$ and $80^{\circ} 26'$ east longitude, and lies thirty miles north-north-east of the large town of Kummummett, and thirty-six miles south-east of the Kamawaram field. It consists of an irregular patch of the true carboniferous sandstones, thirteen miles long, and from one to two miles in width, but the actual coal measures are not more than eight miles in length, and from half to one and a half broad. The Kamthi sandstones extend north to within one mile of the village of Rampaid, and a good section of both the upper and lower rocks is well exposed in a large nullah which runs close to the north-western edge of the measures. In a south-easterly direction the field extends as far as Ragabagoodium, a little to the west of which village the Damudas appear immediately above the Vindhyan and crystalline rocks, no traces of the Talchirs being anywhere visible. The south-western border reaches the latitude of Singarennny, but lies four miles east of that village. The entire region between Singarennny, Ragabagoodium, and Rampaid is, comparatively speaking, level, but at intervals low ridges of detached and broken masses of sandstone are exposed at the surface, and about the middle of the field, close to where it is crossed by the Yellendellapad stream, there is evidently rather an extensive fault, and at several other places slight breaks occur, but as a rule the different strata of Kamthi, Damuda and Talchir sandstones lie very uniformly, dipping to the southward at the easy angle of from five to ten degrees.

The entire country, like Kamawaram, is thickly covered with jungle and small forest trees, but the villages are more frequent and populous, and well-marked paths are found in every direction. Some eight or ten miles west of the coal field the greater part of the country is open, with many large tanks at short distances apart, under which there is an average quantity of wet cultivation, but the grain produced was quite inadequate to supply the exploring party during the working seasons of 1873 and 1874, so that the greater portion of the provisions consumed had to be imported from the towns of Kummummett and Nellicoodr (the latter is

the principal village in the Kundi Condah Taluq). The immediate region where the coal field exists is almost surrounded by low chains of rugged and broken hills, those to the west and south-west being chiefly composed of limestones and Vindhyan rocks, with here and there large deposits of iron ore, which have been worked and smelted for many years past by the inhabitants of the surrounding villages, and as this ironstone was found to be of an excellent quality it will doubtless prove of great value when required for use on a large scale.

The several ranges which lie to the east consist chiefly of Vindhyan and crystalline series, but occasionally veins of iron ore are to be seen, but apparently not so extensive as those west and south-west. The only outcrop of coal exposed at the surface in this field is the upper or King's seam, which is visible in the bed of the stream known as the Yellendellapad vogu, and is situated two miles west of the hill station marked on the Atlas sheet No. 75, near the small village of Kotapur. At the place where the coal is exposed the river is crossed by two low barriers of thick-bedded sandstone, striking east and west, with a dip of about five degrees south-west by south. The stream has cut an irregular course across the northern barrier, to the depth of fifteen feet, the coal being exposed at the lower edges of the sandstones, and also forming the bottom of a pool, which is generally dry during the greater part of the hot season, leaving the upper portion of the seam visible.

In this coal field four very extensive seams exist, extending over an area of several square miles in extent. That portion of the measures lying north of the Yellendellapad river is called the Northern Division, and as it was the first explored by borings, varying in depth from fifty to two hundred and fifty feet, it will be well to describe the different seams as they there occur before proceeding further.

The upper or King's seam (the outcrop of which has been before alluded to) is composed in some places of ten feet of excellent coal, the upper half being hard and compact, breaking with a subconchoidal fracture; the lower portion is, however, somewhat softer, and less close in texture, but far more bituminous. It extends over an area of one and a half square miles, on an average thickness of six feet throughout, and allowing one-third for pillars, &c., there will be (5,500,000) five and a half million tons of workable coal.

The second and third seams extend over a like area, on an average thickness of three feet each throughout, and will produce (8,500,000) eight million and a half tons of workable coal.

The bottom seam, which is generally met at about one hundred and fifty feet below the surface, was found in many borings to reach the very considerable thickness of thirty-four feet of solid coal, and, judging by the small quantity taken out of the bore holes, it appears to be of a first rate quality.

Up to the present time (1875) no shafts having been put down as far as this seam, it is quite impossible to come to a correct decision as to the true properties of the coal, as many thin bands of shale may exist that are now unknown. This seam is only estimated to extend over an area of one and a half square miles (in this section of the field) at an average thickness of twelve feet throughout, which will give (8,500,000) eight and a half million tons of available coal, but it is almost a certainty that whenever this seam is worked it will yield a far greater quantity than that now estimated, as great allowances have been made for faults that may occur in various parts of the measures, the existence of which at present is not known.

Taking together the quantity of coal contained in the four seams within the boundary of the Northern Division, there is a grand total of (19,500,000) nineteen and a half million tons of coal, of what may be considered a first class quality, decidedly equal to, if not better than, any coal as yet discovered in India.

In the Southern Division the coal measures are more extensive than in the Northern Division, but they do not lie quite so uniformly. Upon its being tested by borings, varying from one [? hundred] to two hundred and fifty feet in depth, it was found that the upper and middle seams were slightly reduced near the village of

HYDERABAD AFFAIRS.

Hooserakpully (situated on the western edge of the carboniferous rocks), but that the lower seam was increased to the thickness of fifty-three feet six inches, with but a slight break, at eight feet from the top, composed of black argillaceous shale.

The samples of the coal brought up by the boring tools from the lower seam have been analyzed, and they give the following analysis :—

Fixed Carbon.....	66·00
Volatile Matter	23·00
Ash	11·00
	<hr/>
	100·00

As the lower seam runs south-east it gradually thins down, and opposite Ragabagoodium it is represented by a thick stratum of black shaley clay, but the other seams continue at about the same thickness as they are in the Northern Division until they reach the edge of the measure, where they appear to break off suddenly. Upon a careful examination of the different sections shown by the boring put down in this division of the field, it was estimated that the coal extended over an area of one and three-quarter square miles, at an average thickness of twenty-five feet throughout, which will give (40,500,000) forty and a half million tons of coal, from which deducting one-third for waste (27,000,000) twenty-seven million tons of workable coal remain.

To this result must be added the nineteen million and a half tons existing in the Northern Division, which will give in round numbers a total of (46,500,000) forty-six and a half million tons of coal not much inferior to any of the Newcastle coals now used on most of our Indian railways. Two hundred feet south-west of the outcrop of the upper coal seam a trial shaft has been sunk to the depth of fifty feet. It is down to the bottom of the first seam, and about three hundred tons of coal have been excavated from there, for the purpose of having it practically experimented upon. A considerable portion of the coal was conveyed to Hyderabad, and several tons have been tested by Mr. Elsworthy, Engineer in charge, H. H. the Nizam's Workshops.

When tried in one of the stationary boilers, and in several other ways, it was found to burn freely, and possess very considerable heating powers. Mr. Cruddas, Engineer in charge of Messrs. Nicol and Company's Byculla Iron Works in Bombay, tested a quantity of it, and the opinion given on the quality of the coal by him was very satisfactory. The sample that has been despatched to England was pronounced to be a good average coal but slightly inferior to most of the coals at present in the English market. The Singarennny coal field is more favourably situated for the export of coal than any of the other fields described in the foregoing pages. Its nearest point is fifty-two miles from the town of Nagunpole, which is close to the right bank of the river Godavery, and well below all the barriers that have so seriously obstructed the navigation of what has been generally known as the Upper Godavery. The region lying between Singarennny and the river, although much broken and disturbed, will not, in the opinion of the officers who surveyed that locality, namely, Messrs. Mills and Woods (of the Chandah Railway Survey), be a difficult country over which to construct a line of railway, as shown in the sections of the proposed line surveyed between Hanumkondah and the Godavery via Singarennny.

GODAVERY COAL.

Coal was discovered a few years ago on the right bank of the river Godavery, by Mr. Blanford, Deputy Superintendent, Geological Survey of India. The coal found by him consists of a couple of seams, a few inches in thickness, situated in the vicinity of Madawaram, a large village close to the banks of the Godavery about twenty miles below the town of Budrachellum. The seams met proved so thin, and the coal of such an inferior quality, that at the time no steps were taken to make a further examination of the neighbourhood.

In the beginning of 1874 Mr. Heenan received instructions to explore, in conjunction with Mr. Taylor, Coal Viewer to H. H. the Nizam's Government, all

the country lying between the Singareddy coal field and the river Godavary, and to test the ground by borings, wherever coal was likely to exist. The result of the examination was that several extensive beds of carboniferous rocks were discovered, which in all likelihood contain coal, but, no outcrop being found throughout the entire region, it is impossible to speak positively as to the existence of coal, as the measures in this part of the country often contain nothing more than a few thin seams of shaley slate. An unbroken area of the coal-bearing formation situated three miles from the large village of Ryegoodium, and five miles south of the Godavary, was selected by Messrs. Taylor and Heenan, owing to its close proximity to the river, to be the first tested by borings.

This field lies between the villages of Sivawaram, Imapad, and Guntumtogue, forming an oblong of about five miles in length, and from two to three miles in breadth. It has been called the Sivawaram field, after the village of that name, which is the largest in the immediate vicinity of the measures. Throughout the field the different strata lie almost horizontal, and the greater part appear perfectly void of faults or irregularities of any kind.

The Damudas are clearly exposed in a well a little way south of Sivawaram, and also in several watercourses, but more especially in a large nullah that runs south of the village of Imapad. They are generally composed of coarse, soft, felspathic sandstone, in some places having quartz pebbles thickly distributed through them, and in a few cases layers of hard conglomerate a couple of feet in thickness overlap the softer sandstones. The hills to the south and south-east of the field are entirely composed of the Kamthis, and at their base thick deposits of alluvia are to be found, but these beds being much cut up by the action of water the lower strata are left well exposed, lying regularly and dipping about two degrees south-west, so that in all probability the entire depth of the coal measures remains in a comparatively undisturbed state. One boring was pitched at about the centre of the coal measures, and carried to the depth of three hundred and sixty feet. Here three seams of coal have been discovered, and as the boring was rather a remarkable one it will be as well to give a short description of it.

This bore hole shows a section of a mixed stratum of variously coloured sandstones, sometimes very soft and coarse, and again exceedingly hard, with at intervals thin layers of clay and shale, before striking coal. The first seam struck lies immediately below a compact mass of hard whitish sandstone. It is two hundred and forty-two feet from the surface, and only one foot in thickness. The second seam lies at the depth of two hundred and seventy-two feet, and it consists of four feet of coal, which, judging by the small quantity extracted by the boring apparatus, is moderately good. The third seam was met at the depth of three hundred and thirteen feet, and is six feet in thickness. The small portion of coal taken from this seam was very much mixed with foreign matter, which rendered it quite impossible to form a true estimate as to its quality.

A second boring was commenced, and carried to the depth of one hundred feet, but, owing to the rains having set in, the exploring party were obliged to return to Hyderabad before striking any of the coal seams.

In the foregoing *resumé* the writer has endeavoured to describe the present aspect of the known coal fields in H. H. the Nizam's territory. These have been shown to be five in number, namely, the Rajore Sasti, Kamawaram, Bollapully, Singareddy, and Sivawaram fields. Of these the Singareddy and Sivawaram are the two to which in all probability attention will be first directed, owing to the much larger quantity of coal these fields contain, as well as to the extra facilities they afford for easy export and economical working.

With such facts before us, and taking into consideration the present increasing price of English coal, enterprise will surely not be wanting, and it is to be hoped that before long the Nizam's coal may find a place in the market, and prove a source of considerable revenue to the Government in whose dominions it exists.

F. H. HEENAN.

August 1875.

BOMBAY GAZETTE, August 3, 1881.—*Archæological Remains in the Nizam's Dominions.*—From our own correspondent, dated Hyderabad, July 25 :—

With the formation of an Indian Museum at Oxford by Professor Monier Williams, towards which liberal contributions were sent by many of the Native Princes of India, an impetus has been given to explorations in India for the discovery of archæological remains. The writings of Tavernier and other distinguished Indian travellers always refer to His Highness the Nizam's territories as a storehouse where the enterprising explorer would be certain to be rewarded for his exertions. Such motives induced a foreign gentleman named Herr Edelstein to prospect some of the districts of the Hyderabad State. His labours were most happily rewarded, for he came upon the remains of very ancient fortresses on an ancient well on a hill unknown even to tradition, in which coins and jewels have been dropped by Hindu devotees from time immemorial, and the remains of mouldering temples in the heart of jungles almost uninhabited, where the beauty and finish of the prostrate columns and other stonework, all of jet-black polished stone, with strange hieroglyphics engraved thereon, suggest that they belong to an era unknown to Indian history, to an era before the time of Buddha, and point to a prehistoric period. He further elicited information from the people of several districts that many other ancient remains exist in abundance in the country.

To remove even a portion of these most interesting relics from the interior of the country without authority of the country was beyond the discoverer's power. He therefore communicated the discoveries to Professor Monier Williams, who immediately sought the assistance of the Secretary of State for India. Both Lord Lansdowne and Lord Hartington were much interested in the subject, and lost no time in referring the matter to the Viceroy of India. Lord Ripon directed General Cunningham to inquire into the matter, and sent on the whole of the correspondence to the British Resident at Hyderabad; the Resident in due course referred the matter to His Highness the Nizam's Minister, in view to the Hyderabad Government's assistance being rendered towards bringing these most interesting remains to the knowledge of the civilized world. But alas for the ignorance and cramped exclusiveness of Native Governments, from which even that civilized Minister Sir Salar Jung is not exempt! a stumbling-block has been thrown in the way of the further prosecution of this interesting matter. There was consternation amongst the staff of the Nizam's Government in consulting over the subject. It was evidently feared that if any encouragement was given to this sort of thing the whole of His Highness's country would be hunted over by this irrepressible traveller, whose demands would eventually be a snare and vexation to the Government. So argued the wiseacres. It was therefore solemnly resolved that it was best to get out of this business and to nip in the bud any such explorations in the Nizam's territory. The Nizam's Secretary in the Public Works Department suggested and indited a report, to the satisfaction of the Minister and the Government in general, that he was sure there must be some mistake, as he, as Secretary D. P. W., had not explored those unexplored tracts, and it was therefore impossible for any one else to explore them, and that archæological discoveries such as those mentioned must of necessity be impositions, inasmuch as the foreign traveller was not an officer of the Nizam's D. P. W. And so the matter stands. The patient discoverer has brought all this to the notice of the Government of India and the Home Government, and doubtless before long some startling reprimands will be received by His Highness's Government, the nature of which, perhaps, may be almost as interesting as the archæological discoveries of Herr Edelstein in His Highness the Nizam's dominions.

DECCAN TIMES, August 13, 1881.—*Archæological Remains in the Nizam's Dominions.*—In another column will be found an extract from the *Bombay Gazette* under the above heading, which we would have scarcely deemed it necessary to notice had the article not been copied by several of our contemporaries, who thereby attached an importance to it that it does not deserve. The foreign gentleman named Herr Edelstein alluded to is a well-known character in these parts.

He turned up at Hyderabad some five years ago, but certainly not as an enterprising explorer whose motive was to prospect the Nizam's territories for the discovery of archaeological remains, or to tap the storehouse in which is locked up the mass of information that the scientific world is hankering after. Such indeed were not his motives if we may judge from the fact that he first set up here in a very humble way as a boot and shoe maker, and plied away at his trade, with a varied degree of success, for two or three years. Certain it is that there are many in the station at present who can speak of his qualifications as a follower of St. Crispin. But the business did not prosper, and poor Edelstein got into evil ways, and was for a long time considerably down in the world. There is no doubt that it was during his struggles for existence at this time that he bethought himself of the fresh fields and pastures new which he so suddenly trod shortly afterwards. But even while yet at the last he made an extraordinary communication to the British Resident at Hyderabad purporting to be a revelation of a horrible plot concocted somewhere in Asia Minor for the destruction of the Europeans in India—in fact another Indian Mutiny; but that representative of the Queen, much to the indignation of Herr Edelstein, neither took any notice of the document nor of its author. It was then that the poor cobbler blossomed out into the foreign gentleman whose enterprising spirit induced him “to prospect some of the districts of the Hyderabad State.” He seems to have been more successful with the Nizam's Government than he was with the British Resident; however he managed it, he was actually sent out on an exploring expedition, all his expenses being paid, and with the promise that he would be handsomely rewarded if he made any valuable discoveries. According to this enterprising explorer the Nizam's territories are a perfect El Dorado. Rubies in abundance are to be found in one district, gold and silver in others. There are copper mines here, quicksilver mines there, and mineral wealth everywhere. His account is very much like an Arabian Nights' tale—we fear in more ways than one. Wonderful it is, but is it true? It did not, evidently, gain credence with the Nizam's Government, as Herr Edelstein's services were dispensed with—not, however, before he was handsomely remunerated. We ourselves have interrogated Edelstein on his important discoveries; but he makes a mystery of them, and seems disinclined to furnish any proofs of them whatever. It appears to us that he wishes to traffic with his secrets, if he has any. He makes no secret, however, of his grievances, and complains that he has been badly treated by the Nizam's Government, and it does not seem extraordinary to us that he communicated his discoveries to Professor Monier Williams by way of complaint against that Government.

DECCAN TIMES, August 17, 1881.—*Archæological Remains in His Highness the Nizam's Dominions.*—Mr. Sewell, of the Madras Civil Service, whose admirable report to the Madras Government will be found in another column, has addressed the Nizam's Government, through the British Resident, on the archæological remains of the ancient Telingana kingdom, of which Warangal was the capital, asking to be furnished with as much information on the subject as can be obtained. Mr. Lynn, B.C.E., of the Gazetteer Department, has been deputed for the work, and starts at once for Warangal.

TIMES OF INDIA, October 4, 1882.—*Survey Operations in Hyderabad.*—The Bombay Survey has met with so much hostile criticism at the hands of native writers and native associations, that it is satisfactory to find it has been deliberately adopted by the Nizam's Government as the best suited to the peculiar requirements of the Deccan. It will interest those engaged in survey work in this Presidency to learn how the operations are conducted across the border. The whole history of the Revenue Survey Department of the Nizam's Government is very succinctly told in a little volume of some sixty or seventy pages, just published by Moulavie Syed Mahadi Ali, Revenue Secretary to H. H. the Nizam's Government, on the occasion of handing over the control of his department to Major General Glasford. Mr. Mahadi Ali tells us that when he began survey operations in the Aurungabad

district in the year 1875-76, he found that the annual settlement was made in the most primitive way :—

“The annual settlement was made on the most primitive principles, the Sudder Naib assessing each pergunna in a lump sum, and the Naib distributing this sum over each village. The Patel and Patwadi in their turn apportioned the sum fixed on their village among the cultivators, and holding lands themselves, it was their interest to see that their own and their brethren's share was made as light as possible. Thus while the favoured few escaped with light assessments the main portions of the cultivators were ground down with inordinately heavy exactions.”

It was then determined to experiment in two ways, to try the Deccan system in some villages, the system of the North-West Provinces in others. The Government were from the first in favour of the Bombay or neighbouring system ; Mr. Mahadi Ali, as an old North-West official, naturally affected the system to which he was accustomed. He was instructed to travel through Poona, Ahmednuggur, Khandeish, and Akola to acquaint himself with the working of the survey in those parts, and he came back a convert. The Deccan Survey was alone suitable to any country where the ryotwadi system prevails. It then became necessary to form a department. A few skilled hands obtained from Poona and elsewhere were placed under Mr. Furdoonji, and a school was established at Hyderabad under the personal superintendence of Mr. Mahadi Ali, where a thorough survey training was given to the sons of any of the Hyderabad noblemen and wealthier middle class people, who could be attracted by a monthly salary. Out of three hundred students eighty became qualified, so far as examinations proved their worth. But in practice they did not show so well. They turned out very little work, and as Sir Salar Jung wrote “it will be long before the inhabitants of this province can bring themselves to work as hard as the Brahmmins of Dharwar or Khandeish or the Natives of the North-West Provinces.” However, the leading men engaged were all Hyderabad officials, students and assistants soon proved themselves apt pupils, the department was formed, and work was commenced in the fertile district of Aurungabad. The work of settlement and survey proceeded side by side, though the operations were, of course, quite distinct. There were at first many obstacles :—

“It was not to be expected that hereditary village officers who hold a great part of the lands of each district at very low and sometimes nominal rates, and petty revenue officers who acquire illicit gain at every annual settlement, should look upon the survey with a favourable eye. And it is easily conceivable that this large body of officials should incite Tehsildars, and other revenue officers, to a spirit of passive resistance. As anticipated, the survey met with a certain amount of opposition which was gradually removed by the method I adopted of recommending Government to promote those Tehsildars who assisted us, and to punish recalcitrant officers by reducing them and transferring them to other districts. Owing to the position I held as Revenue Secretary, besides being Survey Commissioner, I was enabled to secure the co-operation of the Revenue authorities ; and I may, in great measure, ascribe it to my personal influence that such co-operation was extended to the survey.”

From 1285 to 1290 Fasli the number of acres surveyed in the North-Western and Western Divisions was 81,82,948 at an average cost of 1 anna 8½ pies ; the total area classified during this period being 48,14,499 acres at an average cost of 2 annas 6½ pies per acre. Altogether the total cost of measurement and classification for this period was Rs. 11,27,438 exclusive of Rs. 1,56,726 for the Commissioner's Office establishment. In the North-West Division the new survey shows an increase over the old recorded area of 2,32,069 acres or 11·9 per cent. and the new rates have increased the assessments by Rs. 2,81,314 or 14·7 per cent. But there is only an increase of 5 pies per acre. In the Western Division the increase over the old recorded area is 2,82,751 acres or 39·87 per cent. ; the increase in the assessment was Rs. 1,09,892 or 15·05 per cent. The old average rate per acre was Re. 1-0-6, the survey rate is Re. 0-13-6, so that here there is an absolute reduction per acre of Re. 0-2-6. As

Mr. Furdoonjee points out the increase of revenue was not the result of any general enhancement of assessment rates, but was mainly due to more accurate measurements. Still the survey, so far as it has gone, will be paid by itself in another year, and then besides "the numerous benefits it has conferred on the country, it will in future bring in revenue to Government." Mr. Mahadi Ali may naturally be proud of the work he has accomplished with native agency alone, and of the flourishing state of the department he now transfers to General Glasfurd. General Glasfurd in taking office expresses we see a high opinion of the efficiency of his new department :—

"As regards the measurements, mapping, and classification of villages field by field, I have been most favourably impressed with what I have seen, and judging from five years' personal experience of the Bombay Revenue Survey, I feel convinced that the work done by the Aurangabad and Gullburga Survey Departments, will compare favourably with that done by any similar establishments either in Bombay or Berar."

He speaks well of the staff :—

"I saw all the Assistants and Sub-Assistants several times. They appear to be an efficient body of officers. They are all familiar with the language of the records, Mahrathi, and whatever their nationality, all keep their books in Mahrathi. I was agreeably surprised to find that both Mahomedans and Parsees were perfectly at home in the vernacular."

And he pays a timely compliment to his predecessor :—

"As one who has had several years' experience of both the Bombay and North-West Provinces system of Survey and Settlement, I cannot conclude without expressing my high appreciation of the ability and perseverance by which you have brought the Survey and Settlement Department in such a comparatively short period to its present high state of efficiency."

TIMES OF INDIA, December 9, 1882.—Berar Cotton Crop.—The following report which has been furnished by Government in accordance with the request of the Chamber of Commerce has been placed at our disposal by the Chamber :—

Memo. on the prospects of the Cotton Season for 1882-83.

The total area under cotton in the current year is reported to be 2,141,966 acres against 2,180,688 acres in the previous year, being 47,722 acres less.

Compared with the three previous years the area under cotton in each district was as follows :—

Districts.	1879-80. Acres.	1880-81. Acres.	1881-82. Acres.	1882-83. Acres.
Amraoti	487,918	434,903	480,917	515,900
Akola	543,166	343,468	590,107	558,582
Ellichpur.....	233,083	214,516	258,520	252,735
Boldana	302,543	267,260	314,614	329,187
Wun.....	296,005	261,386	297,654	230,426
Basim	238,558	235,383	247,876	255,136
Total.....	2,101,273	755,946	2,189,688	2,141,966

There is a decrease in Akola, Ellichpur, and Wun Districts, caused solely, it is believed, by the rotatory system on which cotton is cultivated. It is satisfactory to note the increase in the other three districts.

The cultivation of Khandeish cotton has largely increased in Amraoti and Ellichpur Districts, the figures being 61,346 acres against 17,743 acres in the previous year. In Amraoti the cultivation of this variety of cotton is confined to the Morsi and Amraoti taluqs. The Tahsildar of Morsi reports that the cultivation of Khandeish cotton is not restricted to certain portions of the taluq, but is sown throughout, and that this kind is much sought after, because it fetches a better price than other cotton. The Tahsildar is probably mistaking the Dharwar for the Khandeish cotton, and the Deputy Commissioner intends to send for samples of the leaves and bolls to find out whether it is not the Dharwar cotton which the Tahsildar refers to.

The season has been remarkably favourable to cotton, and there has been no

HYDERABAD AFFAIRS.

failure of crop or resowing with other seed. The long break in the rains allowed all fields to be thoroughly weeded; and before the plants were injured by the break, seasonable rain fell.

The reports show that the cotton plants are in a flourishing condition; and should no disturbing cause intervene a bumper crop may be looked for.

The outturn per acre according to district estimates was:—

	Seers.		Seers.
Amraoti	28	Buldana.....	20
Akola	30	Wun	40
Ellichpur	30	Basim.....	20

Hence the total production of cleaned cotton is estimated at 1,467,204 maunds of 40 seers, against 1,409,413 maunds in the previous year.

Assuming that 120,000 maunds will be retained for home consumption, the balance, 1,347,204 maunds, will, it is estimated, be available for export during the year 1882-83.

The amounts, according to railway returns, exported in the two previous years ending 30th June, were:—

Year.	Maunds.
1880-81	955,724
1881-82	1,543,336

RETURN showing the area, &c., under Cotton in the year beginning 1st July, 1882.

Districts.	VARIETY OF COTTON.										TOTAL.	
	Ordinary bani.		Ordinary jari.		Khandeish.		Americn.		Dharwar.		Hingughat.	
	Acres.	Outturn per acre.	Acres.	Outturn per acre.	Acres.	Outturn per acre.	Acres.	Outturn per acre.	Acres.	Outturn per acre.	Acres.	Outturn per acre.
Amraoti ..	442,709	...	37,025	...	35,778	...	...	...	...	...	388	...
	410,726	...	58,643	...	11,406	...	...	...	...	...	142	...
Akola.....	226,522	...	320,696	...	...	...	11,364	...	...	...	...	...
	232,816	...	352,580	...	...	...	4,711	...	...	...	...	...
Ellichpur...	4,359	...	222,808	...	25,668	...	...	...	...	...	...	...
	5,387	...	246,796	...	6,337	...	...	...	...	...	...	...
Buldana...	306,640	...	7,351	...	...	...	15,196	...	...	...	...	...
	298,421	...	8,366	...	...	...	7,827	...	...	...	...	...
Wun	225,795	...	4,631	...	...	...	...	...	...	...	...	...
	290,631	...	7,023	...	...	...	...	...	...	...	...	...
Basim ...	252,391	...	...	...	...	...	2,745	...	...	...	...	...
	246,822	...	...	...	...	...	1,054	...	...	...	...	...
Total ...	1,458,416	...	592,511	...	61,346	...	29,305	...	...	...	338	...
	1,484,803	...	673,408	...	17,743	...	13,592	...	...	...	142	...

A. P. HOWELL, Commissioner, Hyderabad Assigned Districts.

Commissioner's Office, Hyderabad Assigned Districts, Amraoti, 24th October, 1882.

NOTES ON THE AGRICULTURISTS OF THE DISTRICT OF AURANGABAD, H. H. THE NIZAM'S DOMINIONS. By FURDOONJI JAMSHEDJI, M.R.A.S., Member of the Cobden Club, Superintendent Revenue Survey and Assessment, N. W. Division.

CHAPTER I.—THE FOUR CLASSES OF AGRICULTURISTS.

- 1.—Division of Agriculturists into four classes,—First Class,—Second Class,—Third Class,—Fourth Class
- 2.—Proportion of each class of the cultivators to the whole body.

THE agricultural population of the Aurangabad district consists of some ninety per cent. of Kunbis, with a slight sprinkling of Mussulmans, Purdaysis, Bunjaris, Bheels, Dhungurs, Mahars, Kahurs, Taylis, &c. Irrespective of their castes and creeds, and solely with reference to their operations, position, and means, the whole body of the agriculturists may be divided into four classes. The First Class may be considered to include such individuals as follow other than agricultural pursuits, who do not work personally in their fields, and do nothing more as farmers than superintend the work of their labourers. The cultivators falling under the Second Class have other work to do, and their own household duties to manage, and so cannot spare the necessary time for personal labour in the fields. They restrict themselves to the supervision of field operations, while their families and hired labourers work on the land. The Third Class comprises true agriculturists, the cultivators proper, who devote their entire time, attention, and labour to their fields. They seldom or never employ hired labour, but are generally assisted by all the members of their own families. The Fourth Class consists of impoverished ryots, who have small holdings only, and do not own more than one or two bullocks, which they supplement with hired cattle when the land has to be tilled. As a rule, they join some other occupant as co-sharer, and with his assistance contrive to gain from the soil enough to find a bare subsistence for themselves and their families.

The First Class chiefly consists of Brahmins, who, on the excuse of caste prejudices, never work in the fields themselves; well-to-do Mahrattas, whose women never appear in public; affluent Patels, who can afford to cultivate their farms entirely by hired labour; and prosperous artizans, such as smiths, carpenters, &c., who, having to attend to their several occupations, cannot find time to do the field work themselves, but employ labourers for that purpose. The families of this class never go out for field work; and indeed the class itself, possessing other sources of income, does not entirely depend upon the soil for subsistence.

The Second Class generally consists of the Patels of large villages, who have to attend to their official duties and manage their household affairs; well-to-do Kunbis with large families, and holding considerable areas of garden land; Taylis (oil pressers and dealers) and other traders, whose time is taken up with their occupations; also the heads of families of Malis, who have often to attend the different weekly markets held at the surrounding villages, to sell their garden produce. The cultivators of this class do not personally work in their fields, but closely superintend the work done by their families, and other farm labourers. They are generally well-to-do people, having extensive holdings, which include a tolerably large area of garden land. Besides owning land, they possess milch buffaloes, cows, and brood mares. Although this Second Class depends mainly on tillage for subsistence, its income is largely supplemented by the produce of dairies, and the rearing of stock.

The Third Class consists mainly of Kunbis,—ryots proper,—with a sprinkling of Malis, Purdaysis, Dhungurs, &c. These people, with their families, devote their whole time and labour to their fields, and depend solely upon the land for their subsistence. They

HYDERABAD AFFAIRS.

principally hold dry-crop lands, and are not very prosperous. They might fairly tide over one bad season, but if this were followed by another, and if the State did not then remit its demand, many of them would undoubtedly be reduced to poverty.

The Fourth Class consists of Kumbis, Dhungurs, Malis, Mahars, Mangs, &c.

Agriculturists of the Fourth Class.

Some few of this class hold a small area of land, which they till with hired cattle along with bullocks of their own. The majority, however, possess only a bullock or two, and holding no land themselves generally become sharers with others who do. They all live very poorly, and often from hand to mouth. They are always the first to suffer in bad seasons. Some of the members of each family work in their own fields, while the rest go out to work for other ryots. Sometimes the younger boys are employed to drive out the cattle for pasturage, and to scare the birds off the crops, and so they manage to bring in a small monthly income. During a part of the hot season, when the men of this class have no work in the fields, they are generally employed by the well-to-do cultivators, Marwadis, Brahmins, and others, in erecting new buildings or repairing old ones. Besides this, they often have other work offered them by the moneyed classes. When an agricultural labourer sets up on his own account as a cultivator, he may generally be included in the Fourth Class. In the same way, when one of this class is unable through poverty to till his own lands, and does not succeed in getting himself admitted as a cosharer with a more prosperous cultivator, he remains a labourer all his life.

It would be interesting to ascertain the proportion that each of these four classes bears to the entire body. Seven out of the ten talukas of the district have been surveyed and settled, and trustworthy figures can be obtained for them, from which we can form a pretty correct estimate of the condition of the agricultural classes in the whole district. The figures for these talukas may be thus tabulated :—

PAITAN.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class	From 100 to 799	375	12
Third do.	25 to 99	1,935	60
Fourth do.	5 and under to 24	885	28
	Total...	3,195	100

VAIJAPUR.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class.....	From 100 to 599	717	20
Third do.	25 to 99	2,194	61
Fourth do.	5 and under to 24	664	19
	Total...	3,575	100

GANDAPUR.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class.....	From 100 to 1,000	520	13
Third do.	25 to 99	2,244	58
Fourth do.	5 and under to 24	1,121	29
	Total...	3,885	100

PHYSICAL FEATURES AND NATURAL PHENOMENA.

AMBAD.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class.....	From 100 to 900	1,042	14
Third do.	25 to 99	4,509	61
Fourth do.	5 and under to 24	1,781	25
	Total...	7,332	100

KANNAD.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class.....	From 100 to 600	341	9
Third do.	25 to 99	2,447	61
Fourth do.	5 and under to 24	1,224	30
	Total...	4,012	100

BHOKURDHUN.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class.....	From 100 to 600	302	11
Third do.	25 to 99	1,744	62
Fourth do.	5 and under to 24	761	27
	Total...	2,810	100

SILLODE.

Class of Cultivators.	Area of Holdings in Acres.	Number of Cultivators.	Percentage on Total Cultivators.
Second Class.....	From 100 to 800	215	11
Third do.	25 to 99	1,195	62
Fourth do.	5 and under to 24	521	27
	Total...	1,931	100

The foregoing statements do not, as we see above, include cultivators of the first class, who follow other occupations than that of agriculture. As they cannot devote their entire time to the cultivation of their fields, their holdings are necessarily small,—never, we believe, exceeding fifty or sixty acres at the most: they may therefore, considered as landholders, be taken as included in the figures of the third and fourth classes.

It will thus be seen that the main portion of the cultivators consists of the third class, while the second and fourth (the prosperous and the unprosperous) are pretty nearly balanced in the Vaijapur taluka; but in the other talukas the latter considerably exceed the former. It must, however, be borne in mind that several of the cultivators of the first class, who are sure to be well off, have been included in the figures of the fourth class, on account of the small area of their holdings. Using this datum, we may therefore class the landholders of this district as follows :—

Prosperous by dint of other resources	13 per cent
In tolerably easy circumstances	61 "
In poor and precarious positions	26 "

This is not, however, the place to enter into any disquisition on this subject. In Chapter V. we shall discuss details of facts and figures, and treat this important matter with the care it deserves.

CHAPTER II.—KUNBI LIFE AND MANNERS.

Characteristics of the Kunbis,—Condition of their women,—The Kunbis' language,—The Deccan village,—The Kunbis' dwellings,—Their food,—Their dress,—Their general health,—Their festivals,—Their expenditure attendant on births, marriages, and deaths,—Their religion.

The Kunbi is a harmless, inoffensive creature, simple in his habits, kindly by disposition, and unambitious by nature. He is honest, and altogether ignorant of the ways of the world. He knows little of the value of money, and when he happens to earn any he does not know how to keep it. Like Charles the Second's sailor, he makes his money like a horse, and spends it egregiously like an ass. He is satisfied with very little, and is contented with his lot, however humble. His passions are not strong, he is apathetic, and takes things easily,—is never elated with success, nor is he readily prostrated by misfortune. He is patient to a fault, and shows great fortitude under severe trials. He is a thorough conservative, and has a sincere hatred of innovations. He cherishes a strong love for his *watan* (hereditary holding and rights), and whenever any trivial dispute arises in connection with these he will fight it out to the very last. He will often suffer great wrongs with patience and resignation, but his indignation is aroused if the least encroachment be made upon his personal *watandari* rights, though they may yield him no profit, but happen, on the contrary, to be a tax upon his purse. If the regulated place be not assigned to his bullocks when they walk in procession at the *Pala* feast, or if he has been wrongfully preceded by another party in offering libations to the pile of fuel that is to be fired at the *Holi*, the Kunbi at once imagines that a cruel wrong has been done him, and his peace of mind is disturbed. He will haunt the courts of the taluk and district officials for redress, and, neglecting his fields, will pursue his object with a perseverance worthy of a better cause.

The Kunbi's domestic life is happy and cheerful; he is an affectionate husband and a loving father. He is a stranger to the vice of drunkenness, and in every respect his habits are strictly temperate. He is kind and hospitable towards the stranger, and the beggar never pleads in vain at his door. In short, the Kunbi, within the scale of his capacities, is endowed with most of the virtues of mankind, and exhibits but few vices. We cannot, however, accord to the Kunbi the merit of energy. Industrious he is; he rises early, and retires late; in the hottest time of the year he works in the fields under the burning rays of the sun; at other seasons he has often to work in the rain, drenched to the skin; he is to be seen in the fields on a bitter winter morning, defying the cold, clad only in his simple coarse *kumbli* (blanket). Thus his life is one of continued toil and exposure. But, while admitting all this, it cannot be denied that he works apathetically, and without intelligent energy of any kind,—that the spirit of emulation does not inspire him with vigour; he is slow in his manner of work; his fields are generally badly ploughed, negligently cultivated, and they are not unfrequently allowed to be choked with weeds. His rival in rural labour, the Purdaysi, excels him in many of these respects; the fields held by this latter class are deeply ploughed, carefully cultivated, and thoroughly weeded.

The Kunbi women are very industrious, and are perhaps more energetic than the men. Upon them devolves the performance of all the domestic duties. They have to carry water from the river or well, grind corn, prepare the meals, sweep the house and plaster it with liquid clay or cowdung, clean the cooking vessels, wash the linen, and attend to their children. For a part of the day they are also employed on light field work. Besides getting through these multifarious duties, the women of the poorer classes generally manage to find time to gather a head-load of either fuel or grass, which they carry to their own or any other adjoining village for sale. From these hardly acquired earnings they purchase salt, oil, and other necessities for household use, and a little opium, a

minute quantity of which they invariably administer to their children as a narcotic. Indeed the Kunbi woman takes an honest pride in supplying opium to her children from her personal earnings. If all the women in the family have not enough work on their own holdings, some of them go out to labour in the fields of other holders, and their earnings form no mean addition to the income of the Kunbi cultivator. The women work as hard as the men, and fortunate is the cultivator who is blessed with a number of female relatives in his family, for, instead of being a burden, their industry is a steady source of income to him. With a heavy load on her head, an infant wrapped up and slung to her back, the Kunbi woman of the poorer classes will sturdily tramp some six or seven miles to market, sell the produce of her field there, and from the proceeds buy articles for household consumption; she will then trudge back home in time to prepare the evening meal for the family.

The language spoken by the Kunbis is the ordinary Mahratta—*Prakrooth* as it is termed. Pure Mahratta is spoken towards the southern portion of the district, while up north the dialect is somewhat corrupt.

As yet the schoolmaster is not abroad among the Kunbis. Hardly one per cent. of them know to read and write, and a Kunbi who has received the most elementary education in Mahratta is looked upon as a prodigy.

A detailed description of the Deccan village is not needed in an account of this nature. All that is required is a brief outline of the main features. Villages (excluding hamlets, which are termed *vadis*) are divided into two classes, *kusbas* and *mouzas*, that is, according to Grant-Duff, those that are market towns, and those that are not. In the southern portion of the district, which mostly consists of a level tract of country, the villages lie close to one another, being from about one to four or five miles apart, while in the hilly tracts towards the north the distances between them are greater, being from about three to ten or twelve miles. Most of the villages lie embosomed in shady groves of trees, and at a distance look very picturesque. To the weary traveller, journeying along, there is no sight more refreshing or grateful than the distant glimpse obtained of a clump of trees, for it marks the site of a flourishing and prosperous village. As he advances, he observes the towering *guddi* (fort), the pretty temples, and grey flat-terraced houses peeping out of the green foliage. His road lies between sweet-scented hedgerows, enclosing the irrigated fields in which the peasantry are at work. Here a Kunbi chants his monotonous song as he drives down the sloping bullock-path his patient oxen, which draw, by means of a leathern bucket attached to their yoke by long ropes, water from the well to irrigate his lands. There a band of field labourers are lightening their work by singing some rustic song, which, mellowed by distance, falls not inharmoniously on the ear. Hard by flows the babbling brook, in which men and women are bathing modestly, half-naked though they be, and in which buffaloes love to lie down, keeping their heads only above the water. Here also may be seen a flock of sheep, attended by a little shepherd boy with his brace of shaggy half-starved dogs, drinking in the sweet cool water of the running stream. And Kunbi maidens and matrons, modestly and neatly attired in pretty-coloured *sadis*, are wending their way to and from the rivulet, with water pitchers balanced on their heads. There are heaps of manure piled just outside the village wall, emitting anything but a pleasant odour, and passing these the traveller enters the village gateway, where he finds the village *Yeshkur* (the Mahar on duty), who attends to his wants. The village is certainly not very clean, and roads and drains are generally conspicuous by their absence. The houses are not built in a line, but are irregularly scattered about. Threading the winding path, the traveller at last reaches the *dharamshala* (rest-house). That stately-looking, fort-like structure, just opposite the *dharamshala*, is the residence of the village patel; that modest, humble habitation, which looks as if it stood in awe of the patel's house, and was shrinking away from it, belongs to the village peasant. In yonder gaudily painted house dwells that important personage the village *bania*, whose fat figure and waddling gait are familiar to every man, woman, and child of the village. Those mean-looking hovels, scattered

in a corner just outside the village walls, are the dwellings of the outcaste Mahars, who are not allowed to live within the limits of the village proper.

But all villages are not flourishing and prosperous. The *kusbas* are generally well-to-do ; the *mouzas* are often poor. There exist a few ancient *kusbas* which have seen better days, but which are now shorn of their glory. These are surrounded by dilapidated masonry walls, which are crumbling under the hand of Time, with here and there an ancient arched gateway that stands in solitary grandeur among the ruins, the sole relic of departed greatness.

Towards the hilly tracts in the northern portion of the district the *mouzas* generally wear a bare and desolate aspect. Situated on hillocks, or rising knolls, unsheltered by trees, with their unpretentious, sombre grey mud walls rising in sharp irregular lines against the clear blue sky, these villages look very cheerless and inhospitable.

Long before dawn the village begins to awaken to life. The stillness of the dying night is broken by the cheerful sound of the stone handmill, as it goes merrily round, to the fitting accompaniment of the low sweet song of the Kunbi woman grinding corn for the morning meal. Dawn breaks, and the peasant turns out of his house, shoulders his agricultural appliances, and drives his oxen to his field. The herdboy is now taking the village cattle out to graze, and his faithful dog runs backwards and forwards, and keeps the animals from straggling. The women are busy drawing water from the wells, or bringing it in pitchers from the river hard by, where they cluster in groups and indulge in gossip. The rising generation of the Kunbis, awakened from their healthy slumbers, are at play on the dusty village common, and shout to one another most lustily. Then follow preparations for the midday meal, as is attested by wreaths of smoke, which curl heavily over the house-tops, till, closing the doors of their habitations, the women with their children depart to their several fields, carrying the men's meals with them in baskets. It is now full noontide, and silence and solitude reign over the village. Not a sound disturbs the painful stillness of the place. Even the ever noisy village cur has ceased to bark and yelp, and, seeking shelter in a shady nook, is indulging in a *siesta*. The ubiquitous crow does not now caw, but, snugly ensconced on the leafy branch of a tree, nods drowsily. Stilled are the sounds of all the winged tribe, and even "Nature herself seems to sleep."

Thus the day wears on, and evening falls. As the sun is retiring to his rest in a blaze of glory in the western sky, the women of the household return. The village cattle are driven home, raising a cloud of dust on the line of march. Harken to the discordant music of the horn and drum ! The village *Manys* are playing before the sacred temple, to usher in the fast-closing evening. Lights begin to twinkle in the erewhile deserted dwellings, and the village, once more restored to life, throbs again with the pulse of human existence. One by one, the wearied peasants drop in, and after partaking of their frugal supper they generally repair to the village *chaoli*, *dharamshala*, or Maroti's temple, for a little relaxation. Soon a group of kindred spirits is formed ; pipes (*chillums*) are smoked, and tobacco chewed ; thoughts and ideas are interchanged ; small gossip is retailed ; and often the merits of the different Government officials are discussed. If some of them are musically inclined, they bring with them their guitars and drums, when a rustic concert is started, and ballads and ditties composed in honour of some notable are sung, as well as humorous songs. They all retire about 11 o'clock P.M., when every light is extinguished, and, save for the occasional barking of the dogs, the village reposes calm and tranquil in the stillness of the night.

The ambitious *guddi* or fort ; the substantial *huvayli*, or mansion, towering high amidst the other village dwellings ; the unpretentious but comfortable flat-roofed house ; and the humble thatched hovel —all these are to be found amongst the dwelling-places of the Kunbi cultivators. The *guddi* is now a remnant of the past. During the old troublous times, when wars were of constant occurrence, when both life and property were insecure, the chief patel of the village built a *guddi* for his residence, in which he and his family were secure from the assaults of marauding freebooters. The *guddi* also offered

Their dwellings.

protection to the villagers, who retired therein at the approach of danger. But in the present times of peace these defensive dwellings are fast decaying, and are being replaced by substantial houses. Travelling over the district, we only come across these structures occasionally, and then they are most frequently in ruins. The *guddi* is always surrounded with a high wall, built sometimes of brick in mud, but frequently of that grey loam with which the walls which surround most of the villages in the districts are constructed, and which have in many instances withstood the ravages of centuries. While walls of brick and chunam have yielded to the action of time and weather, these simple mud structures have stood on, defying both. It is said that, owing to the yielding but cohesive nature of the loam, these mud walls can better withstand cannon shot than the ordinary brick walls; while the shot gets merely imbedded in the former, it shatters the latter. The wall surrounding the *guddi* is generally furnished with bastions. The only entrance to the place is through a spacious gateway; the doors are of strong timber, and partly covered on the outside with iron spiked nails, as a protection against their being battered in by elephants, in case of attack. The door generally opens into a sort of antechamber or porch, which is used as a sitting-room by the farm labourers. From the antechamber another door leads into a tolerably large room, in which the milch cows are stalled, and the patel's favourite mare or horse is picketed. Crossing this room, the *chowk*, or open court, is entered, along which an open verandah runs on all sides. This is used as a place for sitting and sleeping by the men. The rooms opening inside the verandah are occupied by the women, and are partitioned off for the different members of the family. The family meals are prepared and are partaken of in these rooms, in which also accommodation for bathing is provided. Sometimes there is a cellar, in which grain, straw, &c., are commonly stored.

But, as we said above, these *guddis* are now few in number, most of the cultivators of the better class living in substantial houses, built of masonry or brick. These masonry or brick houses are generally protected from the outside by a high wall; an open court is entered through a low doorway, and crossing it we enter the principal room. This room is often a wide open verandah, extending the width of the court, and is supported upon wooden posts, on which beams are laid to form the roof. This verandah is sometimes double, the inner portion being raised a step above the outer. In the back wall of the inner verandah doors open either into a second court, or into small rooms, which are used as sleeping chambers, cooking rooms, &c. These houses have flat terraced roofs, and are very substantially built. The mares and milch cattle are generally kept in a shed built within the enclosure of the house. As is usual with all the Hindu houses in this part of the country, not much attention is paid to ventilation, the rooms being generally small and ill lighted. Bedsteads, copper and brass utensils, bundles of clothing, bedding, wattle bins filled with grain, stacks of fuel, dried vegetables, handmills for grinding corn, and all the various household goods are scattered about promiscuously over the place, without manner or method. When the fires are lighted, the smoke, which has little or no vent for escape, fills all the rooms, almost to suffocation; and what with the darkness, the smoke, the odour from the cattle-stalls, the chattering women, and the crying children, a stranger is very glad to escape as soon as he can, after entering.

Many of the cultivators of the Second Class live in tolerably comfortable houses. Outside, facing the street, a front wall shuts in an open court, where the washing is done and the cooking utensils are cleaned. Crossing the court, the principal room is reached through a low door. Most of these houses are built in skeleton form, the roofs being supported on wooden posts. These posts, which are generally about six or eight inches square, are filled in by the mud walls forming the main portion of the house, and cannot, therefore, be seen. The *bressummers*, or wall plates, rest upon these posts, forming a square or rectangular frame, according to the shape of the house. On these, joists are thrown across, about a couple of feet from centre to centre, and over these joists "reepers," or other common planks, about three or four inches broad, are placed to support the clay

thrown on the top, which is slightly bevelled. On this a little alkaline soil is sprinkled, which is a sure preventative against the roof leaking in the rains, and also serves to protect the wood from the ravages of white ants. A few of these houses are also built of rough stone in mortar up to a certain height from the foundation, the rest of the wall being made of brick and mud. The roof is constructed in the same manner, but with better materials.

Besides the principal room, there are three or four other little rooms, from ten to fourteen feet square, one being used as a kitchen, another as a store-room, and so on. Two or three common bedsteads, copper and brass cooking utensils, handmills, and so forth, are promiscuously scattered about the apartments. The rooms are kept clean, being swept daily, and frequently plastered with liquid clay or cattle-dung. Within the enclosure of the house, or sometimes in one of the fields, a shed is erected, into which the cattle are driven for the night,—one of the members of the family and one of the farm labourers sleeping there.

The houses of the Third Class of cultivators do not materially differ from those of the Second Class, excepting that they are built of coarser materials, are smaller in size, and do not generally possess open fore-courts.

The cultivators of the Fourth Class dwell in wretched hovels, the roofs of which are generally thatched with grass. These huts are often too small to accommodate the whole family. A wretched bedstead or two, a handmill for grinding corn, a few brass utensils, some earthen pots ranged one over another, one or two bundles of rags, and fuel for daily consumption, comprise almost all the household goods of this class.

The domestic economy of the household is regulated by the eldest woman of the family, who makes an excellent housewife. Butter is made from the fresh milk of the dairy, and is sent to the market for sale, while the whey and curds go to improve the family meals. With respect to the cultivators of the First and Second Classes, the careful housewife sees that a supply of grain calculated to last for a full year is stored in the house, while the vegetables are supplied from the Kunbi's own garden land. The First Class of cultivators generally take three meals a day. Breakfast is served out about nine o'clock in the morning. It consists of hot jowari or bajri cakes, a dish of milk curds, and some chutney. Between twelve and one o'clock they take their midday meal, which generally consists of jowari or bajri cakes, some dal, and curry made with whey. The supper at night consists of bread and some one kind of home vegetable: the brinjal (egg-plant) seems to be one of the favourite dishes of the Kunbis about this part of the country. This is sometimes varied with a dish of *bayson*, made of gram flour. The men and the children take their meals first, and are waited on by the women. They eat it off brass plates, called *thalis*. When their lords and masters have finished eating, the women of the family sit down to their meals, and dine out of the same brass plates, without taking the trouble to clean them. The meals are served out to the labourers by the women, each man getting a daily ration of about four breads (= 2 lbs.) and some dal or curry. This class of Kunbis are tolerably clean in their habits; both men and women wash regularly, and change their clothing every three or four days.

In the Second Class of cultivators, the eldest member of the family generally stays at home, while the rest of the men proceed to the fields at dawn, performing their morning toilet in a stream, or at a well, on the way. They carry with them the remains of last evening's supper, on which they breakfast at about eight or nine o'clock. About noon the women bring them their meals, which generally consist of fresh cakes of bajri or jowari, and a dish of dal (pulse), or curry made with whey, or vegetables. Sitting under a tree, the men partake of their noon-day meal. Between eight and nine o'clock in the evening the men take their evening meal at home, which generally consists of fresh bread, and one dish of dal, or vegetables, with some chutney; it may be mentioned here that Kunbis eat chutney with every meal. Sometimes they dine off milk and bread. This class of cultivators wash and change their clothing every fourth or fifth day.

In ordinary years the Third Class of cultivators also eat thrice a day, but,

instead of always getting a dish of dal or vegetables, they have often to be contented with the more humble fare of onions, or chutney, and bread. This class of cultivators are also tolerably clean in their habits.

In years of plenty the Fourth Class of cultivators take three meals a day, but in seasons of scarcity they have to restrict themselves to two. These meals consist of coarse bread of bajri or jowari, and often of *kulthi* or *mutt*, and this is eaten with chutney or onions, and, very seldom, with a dish of herbs or vegetables.

It may be mentioned here that in talukas where kharif crops are chiefly grown the cultivators live on bajri all the year round, but where both kharif and rabi crops are raised they subsist on bajri from the beginning of Kartik (November) to the end of Magh (March). From Phalgun (March) to Ashwin (October) jowari is eaten. From the end of Paoosh (February) to the beginning of Phalgun (March) the cultivators in the rabi talukas roast and eat the tender, succulent jowari and wheat in the ear. From the time that the tender grain is ripening in the ear till it is harvested the families of the poorer class of cultivators mainly subsist on the *kooldas*, as the tender grain is called.

It will thus be seen that the cultivators of the First and Second class live comfortably, while the diet of the Third Class is tolerably good and sufficient in quantity. The former are well fed and well clad; the latter have sufficient to eat and are fairly clad.

The ordinary dress of a cultivator of the First or Second Class generally consists of a heavy turban of good stuff, an *angurka* or long coat, and a *dhoti*, of good material. He also generally wears some ornaments of silver, and occasionally of gold, about his person. The ordinary dress of a cultivator of the Third Class is much the same as above, excepting that it is of very coarse material, and, instead of wearing a jacket or *angurka*, he very often wraps a *cumbli* or *dhoti* round him. It is seldom that he wears ornaments. The women of the First and Second classes are clad in *sadis* (long entire robes) and *cholis* (bodices), of tolerably good material; those of the Third Class wear coarser materials. They also wear silver ornaments. But the cultivators of the Fourth Class are miserably clad. A piece of cloth round his loins, a dirty turban, often in shreds over his head, a coarse blanket to protect him from the wind and rain, and a tattered jacket, reserved for festive occasions, generally comprise the sole wardrobe of a cultivator of this class. A couple of coarse *sadis*, and the same number of bodices, form the only dresses which this class of Kunbi women can boast of. But, poor as this class of cultivators are, they are contented with their lot, and in prosperous seasons, when plenty smiles over the land, a more happy and cheerful set of people can seldom be met with.

Broadly speaking, the Kunbis are a long-lived race of people. There is hardly a village which does not number a few venerable patriarchs in its population. The temperate lives they lead, and the outdoor exercise their avocations compel them to take, are the main causes of the general good health they enjoy. The diseases to which the Kunbis are generally liable are fever, spleen caused by neglecting ague, diarrhoea, dysentery, ophthalmia, bowel complaints, affections of the throat, and guinea-worm. When suffering from any of these or other complaints, the Kunbi does not, as a rule, apply to a medical practitioner for advice or assistance. Some simple herbs, gathered from the countryside, are remedies enough for him. But the prince of all cures is considered to be cauterization with a hot iron, or a piece of gold, or blistering with the juice of the *bilwa* fruit (*Semecarpus anacardium*). So largely is cauterization resorted to among the Kunbis that fully half of them show marks of having been scarred on the stomach, back or neck.

It may be mentioned here that the Kunbis have a novel method of curing sore eyes. They sprinkle finely powdered cayenne pepper in the eyes, and, although the organs of vision smart and burn under the application of this severe remedy, the effect is generally beneficial.

But herbs and cauterization are not the only remedies the Kunbi adopts in cases of illness. His mind is deeply imbued with superstition, and he is a firm

believer in witchcraft and necromancy. He attributes nine out of ten cases of illness to the evil spirits which enter his soul and torture him. Those skilled in the black art are invited to mutter certain incantations over him, to tie charms round his neck, or a dark-coloured thread round his leg, and give him holy and sanctified water to drink. These spells are believed to cast out the evil spirits and so effect a permanent and speedy cure.

Cholera and small-pox, when they appear, make fearful ravages among the Kunbis, and carry off hundreds of their number. Happily, it is only at long intervals that these epidemics appear.

Festivals.

The chief festivals observed by the Kunbi cultivators are

(1) the Holi, (2) Pola, (3) Dewali, (4) Dussera, (5) Guddi-Padwa, (6) Nag-Punchmi, (7) Akhati, and (8) Sunkranth.

The Holi feast, which commences fifteen days before the full-moon of Phalgun (March), is kept up for five successive days, and the good housewife provides dainty things for the meals, in the shape of sweet *polis* (bread) and other such delicacies. To the leading man of the village is assigned the honorary privilege of first setting the Holi pile on fire, into which sweet bread, rice, and other food are cast as oblations to *Agni*, or the fire-god. The other Kunbis then follow, and cast in their oblations. It is only on this feast that the temperate Kunbi indulges in drink, and many of them on this occasion become somewhat intoxicated. The Pola, which occurs on the last day of Shravan (August), is a feast celebrated in honour of the bullocks, who on this occasion have a holiday to themselves. They are washed clean, their horns are painted, and in the evening the owner adorns them with portions of his wife's silver ornaments. The wife's best *sadi* is cast on the back of the favourite bullock, and, headed with drum and fife playing a merry tune, the cattle are led in procession through the village, the head patel leading the way. The bullocks are fed on sweet bread steeped in oil, and some of the *balutaydars* receive sweet bread and other victuals.

The Dewali (or "feast of lights"), which occurs on the new-moon of Kartik (November), is observed for three days, during which houses are cleaned, freshly plastered, and freely illuminated; sweet bread and other delicacies are prepared for meals; in large kusbas the chief Mahar woman is presented with a *sadi* by the head patel, and the wives of all *balutaydars* receive each a bodice. Presents of bodices are also made to the Kunbi's female relatives.

The Dussera feast, which occurs on the tenth of Ashwin Sudh (October), is observed for one day, on which occasion two or three sheep are killed near the chief gate of the village, and near the temple of the goddess Devi, by the head patel, and puja performed; special dishes of meat are prepared for the occasion, and agricultural implements are worshipped.

The Guddi-Padwa, which occurs on the 1st of Chaitra Sudh (March), is the Hindu New-year's Day, when a tall pole, surmounted with a brass *lota*, is erected in front of every house, some religious rites are performed, and sweet bread and other extra dishes are made in honour of the occasion; swings are attached to trees, and this pastime is indulged in by all the Kunbis.

The Nag-Panchmi (snake festival), which takes place on the 5th of Shravan Sudh (July), is a festival specially observed by the women. After bathing and dressing, they worship the graven image of a cobra, sweet bread and other delicacies are prepared, and the pastime of swinging is resorted to by the men.

Akhati is also a festival specially kept by the women, who worship on the occasion a wooden or brass image of Gaori Devi. Materials for meals, with fruit, are given to Brahmins, and sweet bread, &c., are prepared for the family meals.

On the Sunkranth, which falls on the 5th of Paoosh Vud (January), certain ceremonies are performed, and *til* seed is distributed among relations and friends. Up to this date the Kunbis never touch the tender, succulent jowari and wheat that are ripening in the ear, but from this day they permit themselves to indulge in these first fruits. The *hoolqa* season, therefore, commences at this time. Sweet bread and other extra dishes are prepared for the occasion.

This ends the list of the festivals observed by the Kunbis. But, besides those

enumerated above, there is another feast observed by them in honour of the god Khundoba, which is called Khundoba's Sutt. Confectionery and other delicacies are prepared, and certain religious rites are performed. Torches are burnt before the image of Khundoba at night. In the rains the Kunbi performs certain ceremonies, called the *Pittra*, to propitiate the manes of his ancestors. Materials for food are supplied to Brahmins, and a dinner is given to relations and friends. The *Pittras* commence upon the first of Bhadrapad Vud, and last till about the end of that month (September). The cultivators of the Third Class observe the same festivals that have been enumerated above, with this difference, that the repasts prepared in honour of the occasion are humbler. The only dainties that the cultivators of the Fourth Class allow themselves in this feast are confined to bread made of jowari or bajri flour sweetened with jaggery.

Marriages, births and deaths.

The Kunbi generally marries his children when they reach the age of nine or ten.

The first ceremony that takes place is the *mungni* or betrothal, and one or two years subsequently the marriage itself is celebrated. The months of Vaisak, Jayste, Margayswur, Magh, and Phalgun (answering to May, June, December, February and March) are considered very propitious, and it is chiefly during these months that marriages are celebrated. The *mungni* ceremony lasts only a single day, but the celebration of a marriage occupies some three or four days. A marriage celebrated in grand style costs from about Rs. 500 to Rs. 800. Of this amount about one-half is invested in gold and silver ornaments and in clothes, while the other half is spent in feasting and rejoicing. A marriage celebrated among the Third Class of cultivators—that is, the more numerous body of the ryots—costs from about Rs. 200 to Rs. 500. Among the Fourth Class a marriage costs from about Rs. 75 to Rs. 150. As stated above, half of this sum is generally invested in gold and silver ornaments, while the other half goes towards defraying the expenses of feasting and alms.

At the birth of a child the Kunbi has to spend, according to his means, from about five to fifteen rupees.

When a death occurs in the house, the expenses attendant on the funeral ceremonies vary according to the means of the Kunbi, the cost generally being from about rupees five to rupees sixty. It may be mentioned here that among the Kunbis it is the custom either to bury or cremate the dead, as may be the practice obtaining in each family.

The Kunbis are generally included in the list of Shudras, the last of the four great classes among which the people are divided according to the Hindu religion. Dr. Monier Williams, however, includes agriculturists in the Third Class (the Vaisias). The Kunbis' manner of worship is much the same as that of other Hindus of the lower classes. They also observe the Mohurum rites of the Mahomedans, and participate in the ceremonies of the *Ooruss* (anniversary) of all Mahomedan saints. The gods they worship are generally (1) Khundoba, (2) Maroti, (3) Gunputti, (4) Mahadeo, (5) Devi, (6) Musosba, and (7) Vithoba. Their titular divinities are Khundoba, Devi, and sometimes Mohoniraj.

Most of the well-to-do Kunbis generally keep in their houses a brass or stone image of Gunputti, a stone image of Mahadeo with his attendant Nundi, and often a silver or brass image of Khundoba. After performing his morning ablutions, the Kunbi, if he belongs to the better class, will worship any one of these deities, by bathing the image with clean water, lighting an oil lamp near it, and by laying before it an offering of bread, fresh milk, or molasses.

Every village has a temple of its own, which is generally erected in front of the village, and dedicated to the god Maroti. Often the villages have temples dedicated to the gods Gunputti, Khundoba, Vithoba, and the goddess Devi. Several of these temples derive assistance from Government in the shape of Enam lands or cash assignments. Some of them depend entirely on the votive offerings of the people. A devout Kunbi never takes his meals without first worshipping his tutelar divinity. In unison with his plain habits, the ritual of the Kunbi is simple and unostentatious.

CHAPTER III.—AGRICULTURISTS AND LABOURERS, AND THEIR WORKING CALENDAR FOR THE YEAR.

The registered Occupant and his Co-Sharer, or Sub-Occupant,—Farm Labourers,—Balutaydars,—How the Kunbi Cultivator and his Family are occupied all the year round.

A BRIEF account may be given here of the different relations that exist between registered occupants of holdings and their co-sharers, or sub-occupants, with respect to the cultivation of their lands. This will serve to illustrate the various ways open to a cultivator destitute of funds, or with limited means, to till his lands.

1. *Surkut* (Partnership).—If a registered occupant be scant of funds, or if his holding be too large to enable him to cultivate the whole of it unassisted, he generally takes in a *Surkutti* (co-sharer). The *Surkutti* bears his quota of the expenses of cultivation, and provides his share of the bullocks. The *Surkutti*'s share in the produce of the fields depends upon the number of bullocks he supplies, the aggregate pairs of bullocks working in the fields constituting so many shares. Thus, if there are eight pair of bullocks working, and the *Surkutti* supplies three pair, he comes in for three of the eight shares.

2. *Ang-wata*.—This is another description of *Surkut*, co-share or subsidiary holding. If any cultivator be not possessed of the means of purchasing bullocks, he applies to a *Savkar* (money-lender), or some larger holder than himself, for as many pair of bullocks as he has male adult members in his family, each person being supposed to cultivate not more than one pair of bullocks can plough. The person who lends the bullocks bears half the expenses of cultivation, and besides paying a moiety of the assessment himself lends out money on interest to the cultivator for the other half. Besides this, the *Savkar* lends to the cultivator for every pair of bullocks given a *pulla* (240 lbs.) of grain, and two rupees, for which no interest is charged. The *Savkar* supplies fodder and oil-cake, for the keep of the bullocks, but during the rains the fodder costs him nothing. In return, the *Savkar* makes a handsome profit by this transaction. He receives half of the gross produce of the fields, and has the grain and money returned to him, as well as the loan advanced for the Kunbi's half-expenses of cultivation, for which latter he obtains full interest.

Battai.—The conditions existing between the registered occupant and the cultivator with regard to the *Battai*, or payment-in-kind system of partnership, are as follows :—

The registered occupant pays the Government assessment, and if wheat or gram is to be raised on the land he supplies half the seed-grain; but if other than these crops are to be raised the *Surkutti* or co-sharer supplies the whole seed. The latter also finds his own bullocks and labour. The registered occupant receives, as his share, either one-third or one-half of the produce, as may have been settled.

Pote Vahivatdar.—When a tenant holds lands from a registered occupant on lease for a certain stated term, he pays the occupant the Government assessment, and, over and above that, a reasonable sum in cash, or a certain quantity of grain, as may have been settled beforehand.

Khand-wata.—The other way open to a poor cultivator to obtain bullocks is to borrow a pair from a *Savkar* or any other ryot. For these he has to pay at harvest time two *pullas* (480 lbs.) of grain, and two hundred bundles of straw. The cultivator has to feed the bullocks during the time they remain with him.

In some cases a registered occupant prepares a certain portion of his garden land, and rents it for a year to a cultivator for a certain sum of money, at the same time agreeing to water the area so rented, at the rate of so many waterings per month. *Bagwans* (market gardeners), who raise vegetables in the vicinity of large towns, generally take land on this condition, and thus save themselves the trouble and expense of preparing and irrigating the soil.

We will now inquire into the actual means of existence of the landless class—that portion of the agricultural population who, having no direct interest in the land, support themselves wholly, or in part,

by field labour for others. It would be no easy task to ascertain, with any degree of accuracy, what proportion the field labourers bear to the whole body of the agriculturists. But, on a rough estimate, it may be assumed that about fifteen per cent. of the agricultural population support themselves as hired field labourers. In this district labourers are employed by the year, by the month, and by the day. They receive their wages either in money or in grain; and in some instances they are supplied with food by their employers.

When a labourer is employed by the year he generally receives from Rupees 12 to Rupees 30 per annum with food, or from Rupees 45 to Rupees 55 without food. In the former case he is also supplied with the following five articles of dress every year:—

1 Cumbli (blanket), value about Rs.	1	8
1 Dhoti	"	1 0
1 pair Shoes	"	1 0
1 Turban	"	1 0
1 Waist-cloth	"	0 8
Total Rs.,		5 0

A written agreement is generally entered into by which the labourer binds himself not to leave the service until the expiry of the term of his contract. It may be mentioned here that the labourer has generally to serve thirteen months, though he is only paid for a year. The agreement is generally entered into during the months of *Chaitur* and *Vaisak*, when a part of the yearly wages is paid in advance, and the labourer draws the balance in small sums, as he may require, from time to time. When food is given it consists of four cakes (about 2 lbs.) per day, and some vegetables, or *dal* with *chutney* or onions.

When a labourer is employed by the month a written agreement is seldom entered into, but the labourer engages to give a month's notice before leaving the service. Labourers of this class are seldom employed all the year round, but are only taken on during busy seasons. They do not generally receive food, but are paid a monthly salary varying from Rupees 4 to Rupees 6, and have to find their own food and clothes. When the labourer receives an advance, he repays it by monthly stoppages out of his salary. When working in the fields his meals are brought to him by one of the women of his family.

Excepting when employed in harvest work, the labourer when engaged by the day is generally paid in cash. He receives from two to three annas per diem, and in very busy seasons, when labour is scarce, he sometimes receives as much as four annas (6d.). A woman obtains from 1 to 1½ anna, and sometimes two annas per day. A boy has about an anna a day. Labourers engaged on daily wages are generally employed on the following work:—

Weeding.—Cash payments are generally made for this kind of work.

Harvesting.—The labourer receives five sheaves for every hundred of the crop he gathers. If it be a jowari or bajri crop a woman is able to reap from 50 to 75 sheaves per day, and a man 100. Gram, *tur*, &c., is tied in large bundles, called *kuddups*, which vary in size, and of these also the labourer receives five per cent. When scarcity prevails, and prices of grain are high, the labourers are not paid in grain, but in coin.

Cotton and Ground-nut Picking.—The labourer receives about $\frac{1}{4}$, $\frac{1}{5}$ or $\frac{1}{8}$ of the quantity picked in a day. During the first picking the share paid to the labourer is not so large as during the second and third pickings.

Threshing.—For separating the heads of one hundred sheaves of bajri and jowari from the stalks the labourer receives two seers of the heads of corn.

Ginning Cotton.—This labour is generally paid in cash by Marwadis, who purchase the crop, at so much for every seer of cotton ginned. The cultivator, however, gives the labourer the cotton seed in payment of the labour for ginning.

When his crops have been harvested the cultivator is called upon to meet the various demands of the *balutaydars* on the produce of his lands. The *baluta* institution is of ancient origin and widely known. It is an essential element of the excellent village system, having survived many other useful customs that have been allowed to

Balutaydars, or village artisans, and menial servants of the community.

fall into disuse ; and it is much, to be desired that, as far as practicable, this ancient institution may be maintained in its integrity. As is generally known, there are twelve *balutaydars* and twelve *alutaydars* ; but few of the latter are now recognized, for such men rarely, if ever, now obtain their *huk*s (dues). A great portion of the *baluta* system, however, has been preserved intact.

We can explain the system clearly by supposing a ryot to hold enough land to require four bullocks in its cultivation, and that he raises jowari, or any other kind of cereal, on his holding : he has then to remunerate the *balutaydars* as follows :—

		Grain. ^o					
a.—	1. Mahar ... ..	...	...	...	...	...about seers	110
	2. Sutar (Carpenter) ... ..	...	...	...	...	" "	65
	3. Chambar (Chuckler) ..	...	...	...	...	" "	60
	4. Lohar (Blacksmith) ..	...	...	...	...	" "	35
b.—	5. Purrit (Dhobi) ..	...	...	...	...	" "	15
	6. Navi (Barber) ..	...	...	...	...	" "	35
	7. Kumbhar (Potter) ... ..	...	...	...	...	" "	35
	8. Yeshkur. (He generally gets a piece of bread daily from every house, and his share of <i>baluta</i> from the grain that is given to the Mahar.)	...	...	...	...	" "
c.—	9. Mang ..	...	...	...	...	...about seers	15
	10. Koli ..	...	...	...	...	" "	15
	11. Mulani ..	...	...	...	...	" "	15
	12. Bhutt ..	...	...	...	...	" "	15
Total...about seers							415

With four bullocks a ryot ought to be able to cultivate about fifty acres of land. The average outturn, at the rate of six maunds per acre, would be 300 maunds, or 12,000 seers (24,000 lbs.). Out of this produce he has to give the *balutaydars* 415 seers (830 lbs.) of grain, which is about four per cent. of the total produce.

The nature of the services rendered by each of the foregoing *balutaydars* may here be briefly stated. I may mention, in passing, that they are divided (as indicated above by *a, b, c*) into three classes (*kas* is the Kunbi's term), according to the nature and importance of the duties performed by each. The Mahar is perhaps the most useful and hard-working member of the *balutaydars*. He serves as messenger, guide and *begari* (menial labourer) ; carries money collected from the cultivators to the Tehsil catcherry ; rubs down the horses of travellers staying in the village ; buries dead animals ; and is, in fact, a man of all work. He is indispensable to the village. All the woodwork of the agricultural implements is made or repaired by the carpenter free of all charges, the cultivator merely supplying the wood. The *Chambar* resoles and otherwise repairs the cultivators' shoes, annually supplies the cultivator with a new whip to drive his bullocks, and does the necessary repairs to the large skir buckets (*mhote*) for the wells, free of all charges, and also finds the leather for the purpose. The blacksmith makes all the iron parts of the agricultural implements, and does all necessary repairs free, the cultivator merely supplying the iron and coals, and working the bellows. The *Dhobi* washes all the clothes of the cultivator and his family, and every time he does so receives a bread or two in return. The barber shaves free, getting a bread only when he shaves the head of the family. The potter supplies the cultivator free with earthen vessels for domestic use, for which he annually gets his share of *baluta*. The *Yeshkur*, the head of the Mahars, is on duty at the village gate, where he is always present. It is for him to give orders to the other Mahars and see all the work done. In virtue of his office he receives an extra share of *baluta* from the portion allotted to the Mahars. The duty of the *Mang* is to blow a horn and beat a drum before the temples and *chaodi* every evening, and to make hempen ropes for the cultivators. The *Koli* fetches water for travellers, and daily sweeps the *chaodi* and temples in the village. The *Mulani* slaughters sheep and goats for the cultivators, whenever occasion may require. The *Bhutt* (common priest) marries the villagers, and reads the *punchang* to them every fortnight or so. It may here be mentioned that

^o It may be mentioned here that most of the *balutaydars* receive their dues not in grain but in a certain number of sheaves ; as these are not, however, of one size, I have, for convenience' sake, given the average amount of grain that can be threshed out of the sheaves.

Carpenters, Chambaras, Blacksmiths, Dhobis, Barbers, Potters, Mulanis, and Bhutts do not necessarily exist in every village, but generally reside in the chief *kusbas* (market towns), and work for all the adjoining small villages. Each of these *balutaydars* has sometimes to look after as many as eight or ten villages.

The carpenter is supposed to be the head of the *balutaydars*: he is called their Patel, and decides all disputes between them. Besides the *balutaydars* enumerated above, there are *havildars*, and other such *watandars* who receive *baluta* also; but these are only attached to large *kusbas*.

The *balutaydars* also assist in the marriage ceremonies of the cultivators. When the marriage procession is formed, it is the duty of the barber to walk with the horse on which the bridegroom is mounted, and to hold it when occasion requires. He also waves a horsehair *chavri* (fan) over the bridegroom's head, and he receives a present of clothing in return for his services. The Mangs beat drums and blow horns before the procession, and are rewarded by a gift of cloth. At the time when the second procession is formed, the bridegroom and his mother (or, if she be dead, some other female member of the bridegroom's family) have to walk from their own house to the bride's house. The Dhobi then spreads white sheets on the road over which they walk. Two sheets suffice for this purpose, being spread alternately one after the other. The Dhobi receives a present of cloth for his services. The carpenter attends one of the processions with a *chaorung* (wooden stool) made by him, which the bride's family present with other things to the bridegroom; and in the last procession, when the bride is brought home, the carpenter walks with a wooden horse. He also receives a present of clothing. The Kumbhar presents the bride's family with some earthen vessels painted in white and red stripes: he always walks in the last procession with a rude imitation of an elephant. He also receives for his services a present of cloth. The Koli supplies water during the feasting that takes place in connection with the marriage. He is also presented with some cloth. The Mahar women attend at the bridegroom's, with a lamp placed in a brass plate, with some betel-leaf, &c.; and, although none of the things brought are taken, a present is made to these women. The Mahar works hard during the rejoicings that occur at the marriage, and in return receives a *sadi* and bodice for his wife, besides some broken victuals. The Bhutt, on marrying the bridegroom and bride, receives a handsome money present, towards which the family of the bridegroom pays exactly double the amount paid by the bride's family. He receives, in addition, presents of clothing, and so forth.

The cultivators cherish a strong love for the *baluta* institution, and they are altogether averse to the payment-in-grain system being supplanted by stated fixed money payments.

The Kumbi's Working Calendar.

Let us now see how the cultivating classes are occupied in each of the twelve Hindu months, on field and other work.

Chaitur (answering to April).—At break of day the cultivator drives his bullocks to the fields, and sets to work at ploughing. About eight o'clock in the morning half an hour's rest is allowed to the bullocks, and, sitting under a tree, the cultivator breakfasts on the fragments of last evening's supper. He then resumes work until a little after 11 A.M. The bullocks are now watered, and generally fed on *kurbi* (*jowari* stalks), a head-load of which the cultivator brings with him in the morning. His wife, or some other female member of the family, brings him his meal, which he eats at midday, and then, if so inclined, washes himself in an adjoining stream or well. About 3 P.M. work is resumed, and ceases about five or six in the evening, when the bullocks are driven home, and watered on the way. Where the fields are at a great distance from water, field work is only carried on till noon, and then stopped. The bullocks are generally stalled in a shed, erected either near the house of the cultivator, or on the plot of ground allotted to him as his threshing-floor. When the cultivator can afford it he gives his bullocks an allowance of oilcake, *mutt*, *kulthi*, or cotton seed.

About three or four weeks before the month of *Chaitur* the rabi crops have generally been harvested, and most of the cultivators, and all their families, too, are now employed in threshing and winnowing operations. Some of

the members of the family remain at the *khullas* (threshing-floors) at nights, to watch the grain. On bright moonlight nights threshing and winnowing operations are carried on vigorously. The women are generally employed in breaking off the *jowari* heads from the stalks, and in filling up baskets with grain and chaff for the men to winnow. The *kurdi* (oil-seed plant) harvest is never carried to the threshing-floor, as the *kurdi* is a very thorny plant, but is threshed out in the fields itself, and after the seed is removed the plant is burnt down on the spot.

In garden lands vegetable seeds, such as onions, garlic, egg-plant, &c., are sown during this month, and the sugarcane is manured. Where cane has been planted, some weeks before, the crop is weeded by women. During this month also cane is planted, in which work the women assist. The women are generally employed in their threshing-yards in making cattle-dung *bratties* for fuel.

Vaisak (May).—Lands for rabi are now levelled with a *vukkhur*. The *vukkhur* is a kind of large hoe, drawn by bullocks; it has a sort of iron scythe instead of a share, about twenty inches broad, and four or five deep, fixed to the centre of a beam of wood between four and five feet long and six inches broad. This implement is used for loosening the surface of the soil to the depth of five or six inches, and for eradicating weeds and grass. This is worked by two or four bullocks from morning till evening, with the usual intermission at noon, as mentioned above. The lands are worked crosswise with the *vukkhur*, three or four times. Threshing and winnowing operations are completed during this month, and the grain is carried home. During the threshing operations much wastage of grain takes place, from being mixed up with the earth. Such earth is now collected in baskets, and dipped in water, by which process the earth is washed out, so as to leave the grain in the basket. The Mahar women are generally employed on this work, and are paid a certain share of the grain so collected, for their labour. The cultivator at this time, as a rule, makes over to his Savkar as much of the produce of the harvest as will pay his debts, and after storing enough for home consumption carries the rest to the market. If the cultivator has borrowed seed-grain from the Savkar, he first of all returns the loan in kind, paying fifty per cent. more than the quantity borrowed. Next, if he has previously agreed to sell the Savkar a certain portion of his standing crop at a certain rate, for which the money has been paid in advance, he makes over the quantity of grain agreed upon. After that, if more grain be left, he stores enough for home consumption, and sells the rest. If the cultivator is well-to-do, and fortunate enough to be free from debts to the Savkar, he stores up all his grain, and reserves it for two or three months, when he can generally command a better price than that prevailing at harvest time. Such cattle as are not worked in the fields are driven out to graze early in the morning, and are brought back about 11 A.M. During the remainder of the day they are fed on the broken straw and chaff (*bhusa*) brought from the threshing-floor. Having carefully stacked his *kurbi* (*jowari* stalks) on his threshing-floor, and made his house water-tight, by filling up the cracks in the roof with fresh earth, the cultivator patiently awaits the first burst of the monsoon. If he intends to take in a co-sharer he does so during this month, but first settles the terms. In garden land, the sugarcane and vegetables are watered about eight times during this month.

Jayste (June).—The monsoon has now fairly set in, and the cultivator is diligently employed in levelling his lands with the *vukkhur*. If the rains have been favourable, and the ground well saturated, kharif sowings take place. Cotton, hemp, *til*, *moong* and *tur* are sown through a bamboo seed-drill—an agricultural implement that is, perhaps, as old as the Indian village system itself. Garden lands are prepared and manured for the sowing of ground-nut. Seedlings of red pepper, which have been raised previously in nursery beds, are now transplanted to garden land. Tobacco seed is also sown in nursery beds during this month. Sugarcane fields are weeded by women, and other lands manured and prepared for planting the cane. The cane is watered about six times during this month. *Guwari* (*Dolichos fabæformis*), *Bhendi* (*Hibiscus esculentus*), *Chaoli*, and other vegetable seeds are sown. Varieties of

gourd are also sown. Such cattle as do not work in the fields are fed at home. The cultivator now returns home in the evening at a somewhat earlier hour, and if it rain hard he very often remains at home twisting ropes from hemp. The women assist the cultivator in collecting the scrub, weeds, &c., that are uprooted by the *vukkhur*, and this they sometimes use as fuel. Domestic duties occupy most of the women's time during this month. Amongst the Kunbis this month is generally chosen for marriages.

Ashad (July).—This is one of the few exceedingly busy months for the Kunbi. Such lands as have not been sown during the preceding months are now worked again with the *vukkhur*. All the cultivators are busy with this uncouth-looking but very effective implement, wherewith both kharif and rabi lands are now levelled. In the Kunbi's estimation a cultivator is no cultivator at all if he does not work his land with the *vukkhur* in Ashad. If he fail to do so the land is not prepared to receive the seed, and has to be allowed to lie fallow during the whole year; for if sown later the crops grown are very poor and stunted. The rest of the kharif sowings take place now, and are completed during the month. *Bajri*, maize, *tur*, *oodid*, *kulthi*, hemp, *rala*, &c., are sown. The cultivator goes to his fields at dawn, and only returns in the evening. He does not stop work for breakfast, as usual, but snatches a few mouthfuls of food while driving the *vukkhur*. The oxen are allowed only an hour's rest at noon; but for the hard work they undergo during the day they are compensated in the evening by a bountiful supply of fodder, to which is generally added a small quantity of oil-cake. The spare cattle are taken out to graze, and no fodder is required for them at home. Beyond their domestic duties and light field work in the garden land the women have now little to do. In garden lands ground-nut is sown, and seedlings of egg-plant and red pepper are transplanted. *Khonde Jawar* (a coarse grain) is in this month ready for the sickle: this species of *jowar* is only raised in garden lands, and is chiefly used for home consumption. *Kuddole*, which is raised for fodder, is also cut during this month, and the working bullocks are fed on it: it is a rich fodder for cattle. About four waterings are given in this month to the sugarcane.

Shravan (August).—Such lands for rabi as have not been ploughed for some years are now harrowed, and then levelled with the *vukkhur*. Fields under cotton, *bajra*, *moong*, &c., are hoed, and afterwards weeded by hand. Tobacco seedlings are transplanted from the nursery bed to the dry-crop fields. *Karella*, a species of oil-seed, is sown. Garden lands in which ground-nut has been sown are now weeded. The earth round the sugarcane plant is dug, and heaped up over the roots, to strengthen the cane. Red pepper (*mirch*) is now ready and plucked from the plants. No fodder is required for cattle, which are driven out to graze. The cultivator has less to do now than he had in the preceding month. The women go out to work in the fields at 9 A. M. and return in the evening, each with a head-load of grass weeded from the fields, which they either sell, or give to their milch cattle. In large *kusbas* many of the men and women subsist by selling the grass weeded from the fields. Several Hindu festivals occur during this month.

Bhadurpud (September).—Lands prepared for the rabi are levelled with the *vukkhur*; *jowari*, linseed, and *kulthi* are sown. The *moong* crop is harvested now (the pods being plucked from the plants), and by the end of the month some part of it is ready for the market. The ears of the *bajri* crop are just forming, and have to be protected from birds, &c. In garden lands *jowari* is now sown. Vegetables and edible herbs are ready for the market. The earth round the sugarcane is again dug out, and heaped up over the roots. Fields under tobacco and cotton are weeded, and also some of the garden lands. The hemp crop is ready now; the plants are uprooted and tied in bundles, to be placed in water, for the non-fibrous part to be rotted away. Fields under cotton are weeded, and in this work women are employed. The grass now springs up luxuriantly, and many of the poor women subsist by collecting and selling it. Such cattle as do not work are sent out to graze, and the bullocks on work in the fields are fed on the green grass collected by the women of the family. The

Pittra ceremonies, in honour of the dead, occur during this month, and much dining out takes place among the cultivators.

Ashvin (October).—If the rains have not been very heavy, the rabi sowings are completed; otherwise they generally take place during the following month. Wheat and gram are now sown; the *jowari* sowings are finished. In garden land wheat and *jowari* are beginning to be sown. *Oodid* and *moong* are threshed, and the women are employed on this work. Grain is forming in the *bajri* ears, and the crop has to be watched; very often the cultivator has to sleep in his field. After the Dussera feast in Ashvin the tender *bajri* grain, called *nimbhore*, is roasted and eaten. Where *jowari* and vegetables have been raised in garden lands they are weeded now, and so are fields under cotton. In garden land wheat, gram, &c., are sown, and more of the *mirch* (red pepper) plucked from the plants. Vegetables are cut and sold in large quantities during this month.

Kartick (November).—The *bajri* crop is now ready for the sickle, and both men and women are busily employed in gathering the harvest. At night the cultivators remain in the fields to watch the kharif crops. The first cotton is now picked, and here again women are employed. In garden lands wheat, gram, opium, *rajura*, mustard, &c., are sown. Cattle not working in the fields are sent out to graze.

This is a busy month for the women. The monsoon is now quite over, and the cold weather has set in.

Margayswur (December).—Such Kunbis as have large holdings carry the produce of the harvest in carts to the threshing-floors, near the village. About the end of the month threshing operations commence. The ears of the *jowari* crop begin to form. Fields under rabi crops are weeded by women, and the last cotton pickings take place during this month. The women are also employed at home in ginning cotton with the ancient *churka*. The top shoots of the gram plants are now nipped off (to enable the plants to spread out), and are either sold or used for food at home. Potatoes are planted during this month. The rabi crops are watched both day and night. In garden land the opium crop is thinned, and the crops of ground-nut, *rajura*, &c., weeded. Lands from which the kharif crops have been removed are broken by the plough, and begun to be prepared for the next year's sowing. The cultivator generally makes over to his Savkar as much of the produce of the kharif harvest as will pay his debts, and storing up some grain for home consumption sells the rest. Such cultivators as are not indebted to the Savkar store up the grain, so as to send it for sale when prices have risen, prices of grain at harvest time being always at their lowest range.

Paoosh (January).—Waste land is now broken by the plough. The *bajri* crop is threshed and winnowed on the threshing-floor. The *Sunkranth* festival occurs during this month, after which the cultivators are at liberty to eat the *hoolda* (the tender grain ripening in the ears). This they roast and eat. The women are generally occupied in ginning cotton, weeding the poppy crop, and in digging out ground-nut from the earth. Tobacco leaves are cut and cured. Mills are set up in which the juice is expressed from the sugarcane; and all who visit the *gural* get a free drink of the juice. The juice is then boiled down into *goodh*, in large pans. The working bullocks are generally kept in the fields at night; they are often fed on such *jowari* stalks as have been stunted in growth, and on which very little or no grain is expected to form: these stalks are pulled out by the roots. They are also fed on the chaff (*blusa*) collected on the threshing-floor.

Magh (February).—The cultivator is busy ploughing waste land, or such lands as have been under kharif crops. Rabi land in which *tur* has been sown is ploughed between the rows on which the crop stands. Threshing and winnowing operations are at this time brought to a close. The rabi crops have to be constantly watched, and boys are employed to drive away the birds, which about this time of the year come in flocks to feed on the ripening grain. The linseed and grain crops are harvested. At night the cultivators generally stay in their fields, to watch the crops. The women are usually employed in ginning cotton, and in weeding the poppy. Some of the men are occupied in expressing juice from the sugarcane, and boiling it down into *goodh*. The cultivator begins to sell

small quantities of the new *jowar* from his fields, with the proceeds of which he purchases salt, &c., for domestic use.

Phalgun (March).—The cultivator and his family are now busy harvesting the rabi crops. Waste lands, and lands which had been under kharif and rabi, are ploughed. The harvest yield is carried to the threshing-floor, generally in carts. The women are industriously employed in harvest work, in ginning cotton, and in gathering opium from the poppy-heads, in which incisions are made during the preceding evening. Great care is required in this operation, otherwise the juice does not exude. The women manage this work deftly.

The foregoing is necessarily a brief sketch, in which we have delineated the mere outlines of the annual occupations of the agriculturists. But it will be admitted that this is a pleasing picture of the rural life of a class of people, in these districts of the North-Eastern Deccan, from whose toil and industry the main portion of the Government revenues is derived. Removed from the busy haunts of men, and a stranger to the vices of the towns and cities, the cultivator has retained something more of the worthier qualities of mankind than are to be found among any other class in these districts.

CHAPTER IV.—THE AGRICULTURIST; THE MONEY-LENDER; AND THE CIVIL COURTS.

The relations between the Money-lenders and the Cultivators.—Action of the Civil Courts in suits against Cultivators,—Different terms on which a Cultivator can raise a loan in cash from the Savkar,—Loans of seed grain,—Loans of grain for consumption,—Proportion of agriculturists who are in debt,—Proportion of their average indebtedness to their average income.

The subject of the relations existing between the cultivators and the money-lenders has been much discussed of late. Very often the Savkar has been cried down as the bane and curse of the country, the Shylock of India, who leads the cultivator to beggary and ruin. On the other hand, there are not wanting advocates of the Savkar, who represent him as a benefactor to the country, and the saviour of the cultivators, helping them when they most need help, and very often losing heavily by his transactions with them.

It may, indeed, be said that up to a certain point these conflicting opinions are both correct. The Kunbi cultivators are generally simple-minded and honest, but quite unable rightly to appreciate the value of money. On the other hand, the Marwadis with whom they have to deal are artful, unscrupulous, and grasping. It therefore often follows that when once the Kunbi has the misfortune to get into the Savkar's books he becomes hopelessly involved in debt, from which perhaps not all his efforts can afterwards extricate him. In this case he will have to pass a bond for a higher sum than he actually receives; will have to pay a usurious rate of interest; will have to sell the produce of his fields to the Savkar at a rate ten per cent. lower than the market value, and must submit to be cheated when getting the grain weighed. But, on the other hand, it must be confessed that the Savkar runs no small risk. He not unfrequently loses by these transactions, through the cultivator's death, or by his absconding with all his property, or through his reduction to complete beggary. A succession of bad seasons may operate to break down even a well-to-do cultivator, and the Savkar then runs great risk of losing all that he has advanced. It will thus be seen that if the cultivator is very often squeezed dry by the Savkar it not unfrequently happens that the Savkar comes off second best in the struggle. Yet however bad the Savkar may be he has many redeeming points. He is an institution necessary to the country, and does much good in his own way. If the Savkar were to withdraw his capital from the cultivator the latter would not be able to get on at all, and Government would materially suffer thereby. When, through unforeseen circumstances, over which he has no control, an honest and industrious ryot is brought to the verge of ruin, the Savkar holds out a helping hand, sets him again on his legs, and supplies him with cattle and seed. It is, in short, the Savkar's interest to do so, whether the ryot is or is not already indebted to him. In the former case he sets up his debtor, because he expects that by toil and industry the cultivator will be able to pay back both old and new debts, whereas

if he be allowed to sink into a labourer or a pauper the Savkar has no prospect of recovering his dues. In the latter case if the cultivator is of industrious and frugal habits the Savkar knows that he will profit by making cautious advances. In short, the cultivators and the money-lenders profit by one another, and the one is indispensable to the other.

But, as has been stated above, the Kunbi cultivator does not rightly appreciate the value of money, and the better his credit the more profuse he is in his expenditure. In prosperous seasons he does not lay by money for years of scarcity. What he gets he generally spends, and leaves the future to take care of itself. During the American War, when the Berar cultivators enriched themselves by growing cotton, a few of the Kunbis made silver ploughshares to till their fields. Many of them spent extravagant sums in the purchase of rich silk dresses for the women of their families. The acute Savkar knows the weak points of the Kunbis, and by freely lending money to the well-to-do he encourages them in extravagant habits, being certain that he will profit thereby. The Savkar understands his own business.

From these and other considerations, it became evident to His Highness's Government that if the cultivator were not in some measure protected by his landlord, the State, he would, by rushing headlong into debt, be completely ruined. It was decided by Government that this protection could be secured by *diminishing, not destroying*, the credit enjoyed by the cultivators. It was at first feared that by interfering with the freedom of contract the Kunbi would not be able to raise money for the purpose of improving his land, for purchasing cattle and seed, and for paying the Government demand. But, on the other hand, it was thought that by diminishing the facilities for borrowing the cultivators would be saved from sinking into irretrievable embarrassment, as they are prone to do when they have unlimited credit. Under well-understood regulations, the Savkar would himself exercise great caution in advancing loans for marriages, feasts, and other luxuries. And yet if the Kunbi required a loan to effect any improvements on his land, or to pay the Government demand, or for any other obviously productive or necessary purpose, it would be to the interest of the Savkar to make the advance, knowing that in such cases the investment would be safe under certain restrictions. Thus, while the cultivator would find it difficult to raise a loan to squander recklessly he would always be able to get money for useful and productive works connected with his land. Next came the question as to how the cultivator's credit was to be judiciously restricted. To this end the following measures were adopted, and circular orders giving effect to them were from time to time issued by the Judicial Department :—

1. No *ex-parte* decree was to be passed by a Civil Court against any debtor until the creditor should have proved, by his books or otherwise, to the satisfaction of the Court, that the bond was executed for veritable and fair consideration.

2. If a usurious rate of interest had been charged it was to be reduced to a reasonable rate. When the amount of interest did not exceed the amount of the principal the rate of interest entered in the bond could be adhered to, but when the amount of interest did exceed the principal the Hindu law of *dām dupat* was to be enforced. Of however long standing the debt might be, the amount of interest given by decree was never to exceed the amount of principal.

3. When the cultivator was unable to pay at once the amount of the decree passed against him the Court could order it to be paid by reasonable instalments. If the circumstances of the case warranted interest being allowed to run on the decree, one per cent. per annum only was to be allowed, until the debt was liquidated.

4. When attachment was issued against a cultivator's property, his house, his agricultural implements, his cattle, and a supply of grain enough to support him and his family till next harvest, was to be exempted from execution.

5. No judgment-debtor was to be imprisoned for debt unless suspected of having concealed his property to evade payment.

So far as can be ascertained, these measures appear to be judicious, and seem

to work satisfactorily. We shall now give a brief account of the different terms on which the cultivator borrows money from the money-lender.

When the cultivator is prosperous and thrifty, he does not trouble to ask for petty loans from time to time, but borrows a lump sum from the Savkar, for the payment of Government assessment, or for any other purpose, and the interest to a borrower of this class does not usually exceed one per cent. per mensem. The cultivator agrees to repay the loan at the next rabi or kharif harvest, but the agreement is generally verbal, and not written. If, at the harvest time, the cultivator sees that the prevailing prices of grain are low, and if he thinks that there is a prospect of obtaining better prices further on, he reserves his stock of grain until such time, and asks the Savkar to allow the loan to stand over till then. Where the cultivator's credit does not stand very high he has generally to pay more interest,—say about Rs. 1-8-0 per cent. per mensem. When any one of this class resorts to a Savkar, he has, in the first instance, to pass a bond, but when he becomes known to the money-lender this formality is no longer necessary. Very frequently the Savkar takes payment in grain, which is sold to him at the market rate, the only difference being that, in weighing, about four or five seers (8 or 10 lbs.) is added to a pulla (240 lbs.) as *kussur*. Cultivators of this class do not generally borrow anything under ten rupees; nor do they, as a rule, borrow seed-grain, or grain for consumption, from the Savkar.

If a cultivator does not enjoy good credit, the Savkar lends him money on any of the four following terms:—

1. *On interest and compound interest.*—The borrower passes a bond to the Savkar, say for one hundred rupees. For this he receives Rs. 98 in cash, rupees two being deducted as *munnoti* by the Savkar. The cultivator agrees to pay interest at a rate which varies from Rs. 1-8 to Rs. 2 per mensem, and to repay the advance at the next kharif or rabi harvest. If he fails to do this, and defers payment till the subsequent harvest, compound interest is charged. The Savkar, after having the bond executed, does not pay down the amount in a lump sum, but lets the cultivator have it from time to time in sums sufficient to pay the Government assessment, or to buy cattle, or to expend in similar purposes.

Butta Mubadla.—The Savkar pays the Government assessment direct to the Patel and Patwadi in Halli Sicca rupees, and recovers from the cultivator at harvest time the same amount in British rupees. The profit he makes in the difference between the value of Halli Sicca and British rupees is considerable, because the rate of exchange varies from Rs. 14 to Rs. 22 per cent., and the period of the loan seldom or never exceeds three months. If the loan is not repaid at harvest time, interest at one or one and a half per cent. is allowed to run on the sum till it is repaid at next harvest.

Ragwadda or *Laoni.*—The cultivator raises a loan passing a written agreement to repay it from the produce of his fields. The Savkar forms an estimate of what would be the probable ruling prices at harvest time, and, leaving a margin of ten or fifteen per cent. profit, agrees to purchase the crops at certain prices fixed between them. This contract is generally entered into four or five months before harvest time. If prices fluctuate meanwhile, either the Savkar or the cultivator loses, but the former is generally the gainer by this transaction. If the cultivator fails to make over the grain at the allotted time, according to one of the terms of the contract he has to give the Savkar in the year following twenty-five or fifty per cent. over and above the quantity of grain originally agreed upon.

Survai.—The cultivator raises a loan promising to repay it within a year by two instalments, the first falling due on the kharif, and the second on the rabi harvest. The bond is executed for a sum of twenty-five per cent. over and above the amount actually paid; this is equivalent to a rate of about two per cent. interest per mensem. Besides this, when paying the cash down, the Savkar deducts two per cent. as *munnoti*. One of the terms of the agreement is that if the amount of the bond is not repaid within the time specified interest at the rate of about

HYDERABAD AFFAIRS.

one or two per cent. per mensem is to run on until such time as the loan is repaid.

It may be mentioned here that in bonds of this sort the cultivator mortgages to the Savkar the produce of his fields, his cattle and house. Sometimes the fields themselves are mortgaged. It need not be stated that the property so mortgaged remains in possession of the owner, the Savkar merely keeping an eye on him to see that he does not dispose of it in any way.

Besides loans in cash, some of the cultivators take loans in seed-grain, on condition that it is to be returned at harvest with fifty per cent. over and above the quantity lent; but if the loan is contracted at a time when prices are high the quantity is doubled. In transactions of this nature written agreements are seldom entered into, the cultivator considering it a religious debt, which he is anxious to pay at the first opportunity. Hence suits for transactions of this nature seldom or never come into Civil Courts.

When the cultivator raises a loan in grain for home consumption he has it on condition of returning the loan at twenty-five or fifty, and in seasons of scarcity at one hundred per cent. over and above the quantity lent. A bond is generally passed for this loan. The borrower does not carry away from the Savkar the whole amount of the grain at once, but receives it in such quantities as may be required. If unable to return the loan at the time agreed upon, the debtor is allowed to repay it at next harvest, with fifty per cent. over and above the total quantity due.

When the cultivator breaks down, and is unable for a period of four or five years to repay his Savkar's debts, his accounts are made up, and a settlement is generally effected in this way: the cultivator enters into an agreement by which he binds himself to till, for a certain number of years, a certain portion of his holding, and, after sowing it at his own cost, to make over the field to the Savkar, who takes charge of it, and reaps the crops when they are ready. And so, at a small cost, the Savkar gets a part of the produce of the cultivator's fields, and is thus enabled to recover what would have been a bad debt.

It is most difficult to ascertain, with any approach to accuracy, the proportion of the agriculturists who are in debt. No reliable statistics can at present be obtained for this purpose. But, on a rough estimate, it may be assumed that about eighty per cent. of our cultivators are in debt. The state of indebtedness, of course, varies in degree. In some instances the cultivators are hopelessly sunk in debt; in others the proportion of their debts may amount to their income for three or four years, while in many cases their indebtedness certainly amounts to their income for one year. We have taken at random five villages of the Gandapur taluka, and on instituting inquiries into the indebtedness of the ryots the results obtained were as follows:—

Name of Village.	Number of cultivators from whom inquiries were made.	Never in debt.	IN DEBT.									Total in debt.
			For one year.	Two years.	Three years.	Four years.	Five years.	Ten years.	Fifteen years.	Twenty years.	Always.	
Babulgaon	17	3	6	4	2	...	...	2	...	...	...	14
Percentage .....	...	17	43	28	14	...	...	15	...	...	...	...
Vagulgaon	9	2	2	3	1	...	...	...	...	1	...	7
Percentage .....	...	22	27	43	15	...	...	...	...	15	...	...
Ranjungaon	15	3	1	2	1	2	1	1	1	2	1	12
Percentage .....	...	20	8	17	8	17	8	8	8	17	9	...
Futhoolabad	8	3	...	2	1	...	1	1	...	...	...	5
Percentage .....	...	37	...	40	20	...	20	20	...	...	...	...
Kalaygaon	15	6	2	5	...	1	...	1	...	...	...	9
Percentage .....	...	40	22.2	55.6	...	11.1	...	11.1	...	...	...	60
Total	64	17	11	16	5	3	2	5	1	3	1	47
Percentage .....	...	36.6	23.4	34.1	10.6	6.4	4.3	10.6	2.1	6.4	2.1	63.4

PHYSICAL FEATURES AND NATURAL PHENOMENA.

From this statement it will be observed that the percentage of agriculturists not in debt is 36·6. It will also be seen that the percentage of agriculturists in debt for a period of one and two years is 23·4 and 34·1 respectively, from which it may reasonably be inferred that the larger portion were driven into debt by the distress that prevailed in 1876-77. It must, however, be remembered that the figures given are only for five villages, and it would be unfair to estimate the indebtedness of the cultivators of the entire district on these figures alone. But, on the whole, it may be assumed that about thirty per cent. of the agriculturists of this district are free from debt.

Proportion of their average indebtedness to their average income.

We shall now inquire as to what proportion the indebtedness of the agriculturists of the five villages mentioned above bears to their yearly income. The result of this inquiry may be tabulated as follows :—

Name of Village.	Number of agriculturists in debt.	Proportion of debt to one year's income.	Proportion of debt to two years' income.	Proportion of debt to three years' income.	Proportion of debt to four years' income.	Proportion of debt to five years' income.
Babulgaon.....	14	9	2	1	2	...
Percentage.....	...	64	14	7	15	...
Vagulgaon.....	7	2	4	1	...	...
Percentage.....	...	29	57	14	...	...
Ranjungaon.....	14	2	5	1	4	...
Percentage.....	...	17	42	8	33	...
Futhoolabad.....	5	2	2	1	...	...
Percentage.....	...	40	40	20	...	...
Kelaygaon.....	9	2	2	2	2	2
Percentage.....	...	22	12	22	22	22
Total...	47	17	14	6	8	2
Percentage...	...	36	30	12	17	5

This statement shows favourable results. The amount of indebtedness of most of the cultivators does not exceed their income for two years, and in no case does the amount of indebtedness exceed their income for five years.

CHAPTER V.—A CHAPTER OF STATISTICS.

Boundaries of the District,—Area,—Wells,—Population,—Registered occupants,—Average area held by each cultivator,—The area ploughed by one pair of bullocks,—Assessment on dry and wet land,—Account of Land Revenue for the past 24 years,—Estimated income and expenditure of an agriculturist of the Third Class,—Outturn of grain per acre,—Expenses of cultivation,—Estimated value of the total production of the land,—Surplus grain available for exportation,—The profits of cultivation.

THIS chapter will really be little more than a summary of statistics. But here we shall submit such figures as will throw a clear and direct light on the present condition of the agricultural community in this district. The data from which observers at a distance can alone be enabled to form an accurate judgment as to the resources and position of the cultivating classes of this district must be sought in the following statement of the area of their holdings; the number of cattle and agricultural implements owned by them; the amount and value of the produce of their fields; and the statistics of their agricultural and household expenses.

The Aurangabad district is bounded on the north by the British Collectorates of Nasik and Khandesh; on the south by the British Collectorate of Ahmednuggur, and His Highness's district of Beed; on the east by His Highness's districts of Beed and Purbhani, and partly by the Booldana district in the Berars; and on the west by the British Collectorates of Ahmednuggur and Nassik.

The district comprises the following ten talukas :—Paitan, Vaijapur, Gandapur, Ambad, Bhokurdhun, Kannad, Aurangabad, Jalna, Sillode, and Khultabad.*

* It should be mentioned here that I have excluded from my account all Jagir villages situate within the limits of the district. I had not the means of obtaining reliable figures for these villages, and I have therefore omitted the statistics of them from this report.

HYDRABAD AFFAIRS.

The last two of these talukas are His Highness's crown-lands. The talukas of Jalna, Aurangabad, and Khultabad have been classed, and the others have come under the Survey Settlement. We are consequently in a position to give correct figures for the district with respect to its area, population, cattle, &c.

The area of this tract of country is estimated at about 2,861,200 acres or 4,471 square miles. Of this area, the unculturable waste may be estimated at about 392,290 acres (613 square miles), or about 13·7 per cent. of the total area. Deducting the unculturable waste from the total area of the district, we get 2,468,910 acres (3,858 square miles) or 86·3 per cent. of arable land.

According to the returns for 1290 Fulsi (A. D. 1880-81), 1,944,165 acres (78·7 per cent.) of these arable lands were occupied, and about 524,745 acres (21·3 per cent.) were lying waste. Of this cultivated area 73,034 acres (3·9 per cent.) were irrigated lands, and 1,775,718 acres (96·1 per cent.) were dry or unirrigated lands. The following statement gives the figures for the different talukas :—

Number	Name of Taluka.	CULTURABLE AREA.							Unculturable Waste.	Total Area, including Culturable and Unculturable Lands.	
		Cultivated Area.			Inam Lands.	Total Cultivated Area.	Culturable Waste.	Total Culturable Area.			
		Dry Crop.	Garden Land.	Total.							
1	Paitan	141,017 97·2	4,088 2·8	145,055 91·8	18,882 8·7	158,937 69·1	71,292 30·9	230,229 92·1	19,670 7·9	249,899 100	
2	Vaijapur	209,510 95·5	9,900 4·5	219,410 95·1	11,408 4·9	230,818 76·3	71,456 28·7	302,274 91·5	28,163 8·5	330,427 100	
3	Gandapur	143,339 96	6,000 4	149,339 89·8	17,036 10·2	166,375 60·7	107,841 39·3	274,216 95·3	13,384 4·7	287,604 100	
4	Ambad	402,788 97·1	12,054 2·9	414,842 97·4	10,884 2·6	425,726 85·9	69,906 14·1	495,632 94·3	29,667 5·7	525,299 100	
5	Kannad	183,195 96·2	7,240 3·8	190,435 94·6	11,011 5·4	201,446 86·4	81,659 13·6	233,105 65·4	123,508 34·6	356,613 100	
6	Bhokurdhun	146,811 95·8	6,356 4·2	152,667 96·4	5,841 3·6	158,508 88·2	21,170 11·8	179,678 84·2	33,583 15·8	213,261 100	
7	Sillode	92,956 94·5	5,868 5·5	98,324 95·6	4,541 4·4	102,865 88	16,462 14	119,327 88·4	15,708 11·6	135,035 100	
8	Aurangabad	181,112 99·5	12,590 6·5	193,702 94·2	11,917 5·8	205,619 75·6	66,574 24·4	272,193 81·9	60,216 18·1	332,409 100	
9	Jalna	249,150 97·3	6,914 2·7	256,064 97·1	7,808 2·9	263,872 82·7	55,280 17·3	319,152 85·6	53,690 14·4	372,842 100	
10	Khultabad	26,340 91·1	2,574 8·9	28,914 96·4	1,085 3·6	29,999 69·6	13,105 30·4	43,104 74·6	14,707 25·4	67,811 100	
Total...		1,775,718	73,034	1,848,752	95,413	1,944,165	524,745	2,468,910	392,290	2,861,200	
Percentage		96·1	3·9	95·0	5·0	78·7	21·3	86·3	13·7	100	
		3,858 sq. miles.							613 sq. miles.	4,471 sq. miles.	

It will be seen from this statement that the talukas of Kannad, Khultabad, Aurangabad, Bhokurdhun and Jalna abound in hilly tracts of country, and that consequently the percentage of unculturable waste there is much higher (being from 14 to 34 per cent.) than in the other talukas. Gandapur and Ambad show a very low percentage in this respect, only a little over 4 and 5 per cent. In the same way, Bhokurdhun, Kannad, Sillode, Ambad, Jalna, Vaijapur and Aurangabad stand favourably as regards the area under cultivation, showing from 75 to 88 per cent.; while Gandapur and Paitan compare very unfavourably, having only from 60 to 69 per cent. under tillage. As regards wet cultivation, the Khultabad taluka is the most favoured one in the district, having 8·9 per cent. irrigated; while in Paitan, Ambad and Jalna it is nowhere so much as 3 per cent. About 5 per cent. of the total cultivated area of the whole district is held free as Inam; while in the Paitan, Kannad, Aurangabad and Gandapur talukas the inam lands amount to from 5 to 10 per cent.

There are in all about 13,624 wells in the Aurangabad district, of which 10,925 are in use, and 2,699 have fallen into disrepair. This gives an average of 6·6 acres of wet land to every well in use.

Let us now look at the total population of the district, and the proportion which the agricultural community bears to the whole. The total population, including the city and cantonment of Aurangabad, the town of Kadrabad, and the cantonment of Jalna, may be estimated at about 436,700 souls, and this gives about 97·7 to the square mile. Of this number,

PHYSICAL FEATURES AND NATURAL PHENOMENA.

the agriculturists may be estimated at 222,262, or about 50·9 per cent. of the whole population.

The details for the different talukas may be given as follows :—

Name of Taluka.	Agricultural Population.	Non-Agricultural Population.	Total.	Percentage Agriculturists to total Population.
Paitan	20,837	21,799	42,636	48·9
Vaijapur	23,510	17,152	40,662	57·7
Gandapur	19,197	11,814	31,011	61·9
Ambad	44,794	34,879	79,673	56·2
Kannad	21,200	15,909	37,109	57·1
Bhokurdhun	19,251	13,031	32,282	59·6
Sillode	13,882	10,779	24,661	55·3
Aurangabad	31,428	42,323	73,751	42·6
Jalna	24,614	44,414	69,028	35·7
Khultabad	3,549	2,338	5,887	60·1
Totals and Average.....	222,262	214,438	436,700	50·9

From this statement it will be observed that, on our present estimate, the agriculturists amount to about 50 per cent. of the whole population. In the Gandapur and Khultabad talukas the cultivators stand as high as 61 and 60 per cent. respectively, while in the Aurangabad and Jalna talukas they count as low as 42 and 35 per cent. respectively. It must, however, be remembered that the population of the city and cantonment of Aurangabad (about 30,000 souls) is included in the census returns for that taluka. In the same way, the population of the town of Kadrabad (10,000 souls) and the cantonment of Jalna (estimated at about 10,000 souls) is included in the figures given for the Jalna taluka. Hence the low percentage observed in the agricultural population of these two talukas. In the taluka of Paitan a large number of weavers and other artisans reside, hence a somewhat low percentage of cultivators is met with there.

The total number of registered occupants in the district amounts to 35,261 ; the total number of oxen to 150,255 ; and the total number of ploughs to 23,493. The following statement affords detailed information on these heads with regard to each taluka :—

Name of Taluka.	Number of registered Occupants.	Number of Bullocks.	Number of Ploughs.	Average area in Acres cultivated by each holder.	Average number of Bullocks to each holder.	Average number of Ploughs to each holder.
Paitan.....	3,195	12,331	2,025	45·4	3·9	·6
Vaijapur.....	3,575	14,010	2,651	61·4	5·9	·7
Gandapur	3,885	15,610	2,200	38·4	4	·6
Ambad	7,332	27,703	1,450	56·6	3·8	·2
Kannad	4,012	15,204	2,567	47·4	3·8	·6
Bhokurdhun	2,810	14,839	2,743	54·3	5·3	1·0
Sillode.....	1,931	10,037	1,857	50·9	5·3	1·0
Aurangabad	3,749	17,436	3,589	51·7	4·6	·9
Jalna	4,178	20,468	3,893	61·4	4·9	·9
Khultabad	594	2,617	518	48·6	4·3	·9
Totals and Average for District...	35,261	150,255	23,493	52·4	4·3	·7

It will be seen from the foregoing statement that Ambad has the largest number of cultivators and bullocks, while Khultabad has the smallest.

Taking the whole district, the average holding of each cultivator comes to about 52 acres ; the average number of bullocks to 4 ; and the average number of ploughs to ·7. Coming to details, we find the largest average of holdings (61·4 acres) in the Vaijapur and Jalna talukas, and the smallest (38·4 acres) in the Gandapur taluka. Again, we find the highest average number of bullocks (5·3) in the Bhokurdhun and

Sillode talukas ; and the lowest (3·8) in the Ambad and Kannad talukas. With respect to ploughs, the highest number (1) are in the Bhokurdhun and Sillode talukas, and the lowest (·2) in Ambad. It should be mentioned here that annual ploughing is only resorted to in the hilly talukas ; whereas in Paitan, Vaijapur, Gandapur, and Ambad most of the lands near the Godavari are not ploughed more than once in 12 or 15 years. Hence we find that the average number of ploughs is greater in the hilly talukas of the district than in the plain country.

With a pair of bullocks a cultivator is expected to till about 20 acres of black soil, and about 30 acres of the lighter lands. The proportion of cultivated acres to a pair of bullocks for each taluka stands thus :—Paitan 23·5 ; Vaijapur 31·3 ; Gandapur 19·1 ; Ambad 30 ; Bhokurdhun 20·5 ; Kannad 25 ; Sillode 19·5 ; Aurangabad 22·2 ; Jalna 25 ; Khultabad 22·1 ; being an average of 24·6 acres of cultivated land to each pair of bullocks.

This proportion, taking all circumstances into consideration, is good. It should be remembered that the survey census of the Vaijapur taluka was taken during the famine year 1878, when hundreds of cattle had been lost for want of fodder, or were sent away to the hills to graze. Hence we find that in Vaijapur the average area of land per pair of bullocks is somewhat high, being 31·3 acres. Some allowance should therefore be made for the excess proportion in this taluka.

We will now give the average amount of assessment per registered occupant in the different talukas. These are the figures :—Paitan Rs. 52 ; Vaijapur Rs. 67 ; Gandapur Rs. 58 ; Ambad Rs. 52 ; Kannad Rs. 38 ; Bhokurdhun Rs. 39 ; Sillode Rs. 49 ; Aurangabad Rs. 52 ; Jalna Rs. 45 ; Khultabad Rs. 59. This gives for the whole district an average assessment of Rs. 51·9 for each registered occupant.

It will be observed from this statement that while the average amount of assessment per registered occupant is Rs. 51·9 for the whole district, in the taluka of Vaijapur the average is as much as Rs. 67 ; while in Kannad it is as low as Rs. 38. The reason for this difference may be found in the circumstance that in the Vaijapur taluka most of the holdings of the cultivators are comparatively larger than in other talukas ; and in the Kannad taluka, which abounds in hilly tracts of country, the soils are very poor.

We will now inquire into the special incidence of the land revenue on the Assessment on dry cultivated area, both for dry-crop and garden lands. The following statement affords detailed information on this head for and wet land. each taluka :—

Name of Taluka.	Average rate of Assessment per acre of garden land.			Average rate of Assessment per acre of dry-crop land.		
	Rs.	A.	P.	Rs.	A.	P.
Paitan ...	3	11	2	1	0	5
Vaijapur ...	4	0	10	0	15	0
Gandapur ...	4	9	4	1	3	3
Ambad ...	3	9	1	0	13	6
Kannad ...	4	15	1	0	12	5
Bhokurdhun ...	4	7	6	0	9	6
Sillode ...	5	9	3	0	12	1
Aurangabad ...	5	3	4	0	11	7
Jalna ...	5	0	7	0	9	10
Khultabad ...	5	5	4	0	13	5
Total average...	4	9	10	0	13	2

It will be seen from this statement that for the whole district the average rate of assessment per acre of garden land is Rs. 4-9-10, and of dry crop Rs. 0-13-2. For the first seven talukas the survey assessment rates are given ; for the other three the rates shown are worked out from the Talukdars' Jamabandi papers for 1290 Fasli (1880).

Turning to the accounts of the past twenty-seven years, a gratifying increase may be traced in the number of cultivators, in the extent of cultivation, and in the

PHYSICAL FEATURES AND NATURAL PHENOMENA.

growth of the land revenue ; thus showing that the general condition of the country has much improved during that period. The increase that is apparent in the district can thus be shown in a clear tabular form :—

Name of Taluka.	Year.	Cultivated Acres.	Assessment, Rs.	Total number of Cultivators.
Paitan.....	1264 (1854)	51,523	98,805	1,651
	1290 (1880)	145,055	165,613	3,195
	Total increase on the twenty-seven years.....	93,532	67,808	1,544
Per centum of increase		181.5	68.6	93.5
Vaijapur.....	1264 (1854)	77,330	90,930	2,248
	1290 (1880)	219,410	241,292	3,575
	Total increase...	142,080	150,362	1,327
Per centum of increase		183.8	165.4	59
Gandapur	1264 (1854)	114,418	147,484	3,092
	1290 (1880)	149,339	226,161	3,885
	Total increase...	34,921	78,677	793
Per centum of increase		30.5	53.3	25.7
Ambad	1264 (1854)	198,553	187,197	5,191
	1290 (1880)	414,842	384,748	7,332
	Total increase...	216,289	197,551	2,141
Per centum of increase		108.9	106.5	41.2
Kannad	1275 (1865)	70,981	113,477	2,607
	1290 (1880)	190,435	155,854	4,012
	Total increase...	119,454	42,377	1,405
Per centum of increase.....		168.3	37.3	53.9
Bhokurdhun	1264 (1854)	90,296	67,374	2,144
	1290 (1880)	152,667	111,048	2,810
	Total increase...	62,371	43,674	666
Per centum of increase.....		69.1	65	31.1
Sillode.....	1265 (1855)	41,175	56,557	1,564
	1290 (1880)	98,324	94,729	1,931
	Total increase...	57,149	38,172	367
Per centum of increase.....		138.6	67.5	23.5
Aurangabad	1264 (1854)	126,939	121,549	2,735
	1290 (1880)	193,702	196,991	3,749
	Total increase...	66,764	75,442	1,014
Per centum of increase.....		52.6	62	37

HYDERABAD AFFAIRS.

Name of Taluka.	Year.	Cultivated Acres.	Assessment, Rs.	Total number of Cultivators.
Jalna	1264 (1854)	92,195	75,711	2,853
	1290 (1880)	256,064	188,690	4,178
	Total increase...	163,869	112,979	1,325
Per centum of increase.....		177·7	150	46·4
Khulatabad	1264 (1854)	21,151	23,405½	641
	1290 (1880)	28,914	35,627	594
	Total increase...	7,763	12,222	47
Per centum of increase.....		36·7	52·2	7·3

It will be evident from the foregoing statement that very considerable and substantial progress has been made in the agriculture of the district, which in itself indicates great improvement in the condition of the ryots. Let us now show what the amount of the total land revenues of the district has been in the past five years only:—

Talukas.	1286 Fasli (1876).	1287 Fasli (1877).	1288 Fasli (1878).	1289 Fasli (1879).	1290 Fasli (1880).	Average per year per Taluka.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Paitan.....	1,48,469	1,57,759	1,76,934	1,69,328	1,66,614	1,63,820
Vaijapur	1,70,320	1,80,057	2,29,670	2,47,372	2,41,292	2,13,742
Gandapur	2,76,152	2,83,388	2,38,945	2,34,631	2,26,191	2,51,862
Ambad	3,13,950	3,27,227	3,23,594	3,30,226	3,84,748	3,35,949
Kannad	1,34,024	1,38,499	1,51,144	1,53,655	1,55,854	1,46,635
Bhokurdhun	90,139	92,972	98,732	1,05,602	1,11,048	99,698
Sillodo	81,530	82,586	88,210	91,048	94,729	87,621
Aurangabad	1,76,682	1,90,947	1,94,430	1,94,961	1,96,991	1,90,802
Jalna	1,44,406	1,56,978	1,82,672	1,87,224	1,88,691	1,71,994
Khulatabad	33,028	36,964	36,780	35,879	35,627	35,668
Average of the district in each year...	15,68,760	16,47,377	17,21,111	17,49,926	18,01,785	16,97,791

The land revenue then, for the whole district, amounts on an average to upwards of sixteen lakhs of rupees, including the road cess. No other cesses are levied.

The proportion borne by the registered occupants to the agricultural population has been shown as one to four. The average holding of each cultivator is about fifty acres, and the average number of bullocks about four. We will now calculate the average annual income and expenditure, in favourable years, of a Kunbi cultivator of the Third Class with his wife and three children aged ten, twelve, and fourteen respectively, and holding 50 acres of land, which he tills with two pairs of bullocks. We will presume that he is a hard-working, thrifty farmer, and that he grows jowar (rabi) on forty acres, and bajri (kharif) on ten acres of his holding. His income from the land and his total expenditure will then stand much as follows:—

PHYSICAL FEATURES AND NATURAL PHENOMENA.

Statement showing the estimated annual Income and Expenditure of a Cultivator of the Third Class with a family of four.

INCOME.	Seers of Grain and bundles of Kurbi.	Aggregate Value.	Totals.
		Rs. a. p.	Rs. a. p.
12,000 seers of Jowar and Bajri, estimated produce of 50 acres of land at 6 maunds (480 lbs.) per acre, and valued at 25 seers (50 lbs.) per Rupee	12 000	480 0 0	
12,000 bundles of Kurbi (Jowar stalks), estimated at 300 bundles per acre, and valued at 8 annas per 100 bundles	12,000	60 0 0	
5,000 bundles of Surrum (Bajri stalks), estimated at 500 bundles per acre, and valued at 4 annas per 100 bundles	5,000	12 8 0	
Total outturn in Rs...			552 8 0
<i>Deductions made.</i>			
Feed grain to be reserved for sowing purposes, estimated at 5 seers of Jowar per acre, and valued at 25 seers per Rupee	250	10 0 0	
Baluta payments, estimated at about 4½ per cent. of the produce...	500	20 0 0	
Grain to be stored for home consumption for the year, for five persons, estimated at the rate of ¾ seer (1½ lb.) per head, per diem	1,350	54 0 0	
Wastage, estimated at the rate of 5 per cent. on the total produce.	600	24 0 0	
Kurbi reserved for two pairs of bullocks for four months, estimated at about 25 bundles per two pairs per diem, and valued at the rate of annas 8 per 100 bundles	3,000	15 0 0	123 0 0
Estimated Balance in hand.....	9,425	377 0 0	
	14,000	57 8 0	429 8 0
EXPENDITURE.	Seers.	Totals.	Grand Total.
		Rs. a. p.	
<i>Expenses of Cultivation.</i>			
Two pairs of bullocks, valued at Rs. 60, at Rs. 30 per pair, estimated to last six years.....		10 0 0	
Oil cake, &c., two pairs of bullocks during four months of the hot season, estimated to cost about Rs. 3 per pair per mensem.....		12 0 0	
Cost of agricultural implements spread over the number of years they last, including cost of ropes required to be renewed annually		10 0 0	
Government Assessment at the average rate of Rs. 1 per acre		50 0 0	
			82 0 0
<i>Expenses for food, &c., excluding grain.</i>			
Oil at 2 seers per mensem.....	24	5 0 0	
Salt at 2 seers per month	24	2 8 0	
Red pepper at 2 seers per month	24	5 0 0	
Spices at 4 annas per month.....		3 0 0	
Vegetables and pot-herbs		4 0 0	
Festivals		10 0 0	
Average annual expenditure for births, marriages and deaths		25 0 0	
Extraordinary expenses, including amount of interest, &c., paid to Savkar on rare occasions		50 0 0	
			104 8 0
<i>Dress.</i>			
2 Country Blankets at Rs. 14-0 each.....		2 8 0	
8 Dhottas, for four male members of the family, one to be used as waist-cloth, and the other for covering the body.....		5 0 0	
4 Khadi (home-spun) Jackets for cold-weather wear		4 0 0	
4 Common Turbans		4 0 0	
4 Pairs of Shoes		2 0 0	
2 Sadies and 2 Bodices for the cultivator's wife		4 8 0	
			22 0 0
Total estimated Expenditure, Rs...			208 8 0
Estimated Balance to be saved to meet bad seasons			221 0 0
			429 8 0

In justification of the foregoing, as being within the average production, it may be mentioned that, given a good season, the best black soil and good tillage, the outturn of jowar sometimes amounts to as much as fourteen maunds (1,120 lbs.) per acre. At the village of Nevurgan, situate on the banks of the Godavari, in the Vaijapur taluka, one of our Survey classers holds some lands. He states that this year, notwithstanding the injury caused by excess of rain, the produce of his field, on which he had raised jowar, was estimated at 12 maunds per acre. Mr. Rustomji Nusserwanji, the Talukdar of the district, personally conducted several experiments in the Aurangabad taluka with a view to ascertain the outturn per acre of the different kinds of *rabi* grain. His experiments were made this year, when, as has been stated above, the whole of the crops were more or less damaged by excess of rain, not to mention the depredations committed by rats. With all these drawbacks, the results arrived at were not unsatisfactory. Of twenty-five fields of jowari experimented upon, the average outturn per bigha amounted to 5 maunds 9½ seers, or 7 maunds 1 seer per acre. In the same way, the average outturn of forty-five fields of wheat experimented upon amounted to 4 maunds 11 seers per bigha, or 5 maunds 28 seers per acre. Of ten fields of gram examined, the average outturn came to 5 maunds 7 seers per bigha, or 6 maunds 36 seers per acre. Taking all these circumstances into consideration, I have adopted 6 maunds per acre as a fair average for valuation of a ryot's income.

The jowar stalks (*kurbi*) we have calculated at 300 bundles per acre, which gives something less than a seer (2 lbs.) of jowar per sheaf. The seed-grain reserved for sowing purposes has been calculated at 5 seers per acre. The *baluta* has been calculated at about 4½ per cent. of the total produce of the land, as shown in detail in Chapter III. In reserving grain for home consumption, at the rate of ¾ seer (1½ lb.) per head, per diem, we have included the cost of pulse (*dal*), &c., which is a favourite dish with Hindus. It must be borne in mind that the family will not use jowar bread all the year round. When the harvest is nearly ripe they roast and eat jowar in the ear: from the time that the tender grain is ripening in the ear till it is harvested the family mainly subsist on the *hooldas*, as the tender grain is called.

The bullocks are only fed for four months (from April to July) on *kurbi*. From August to November they will graze on growing grass; from December to March they will be fed on chaff (*bhusa*) mixed with grass, and partly with *batuk* (jowar stalks uprooted when thinning the crops).

Coming to the expenses of cultivation, an ordinary pair of bullocks required for agricultural purposes cost about Rs. 30, and last for about six years. The agricultural implements consist of (1) *naqur*; (2) *vukkhur*; (3) *magda*; (4) *teefun*; (5) *kurahd*; (6) *koodul*; (7) *vayla*; (8) *khurpa*. These last for various periods, although most of them require annual repairs: the ropes have to be renewed annually.

It may be observed that the above statement does not include the cost of weeding, harvesting, threshing, &c. With a family of four a cultivator is seldom obliged to employ hired labour for these purposes, as much work of this kind is performed by mutual help. One family will help a neighbouring family in reaping their harvest, and they, in return, will assist them likewise, and so on. Where this is not the case, the boys, when their services are not required on their father's farm, go out to work as labourers, and their earnings—not included in the above estimate of income—go towards the payment of hired labour, when it is required to assist in reaping, threshing, &c.

With a holding of fifty acres, forty of which he devotes to jowar and ten to bajri, the cultivator, with his family, will work pretty much in the following order of time:—

In the middle of Vaisak he will prepare his lands for jowar, with the *vukkhur*; this will take him eight days with two *vukkhurs*, at five acres per day. Another day will be occupied by himself and his family in removing the scrub and thorns from the land so prepared. In the

month of Jayste he will work his previously ploughed land, on which he had raised bajri last year, with a *magda* (harrow). He will take seven days to do this with one harrow, at about $1\frac{1}{2}$ acre per day. He will now prepare ten acres of land for bajri with the *vukkhur* : with two of these implements he will do this in two days, at five acres per day. In Ashad he will level his land for jowar, with the *vukkhur* ; this will occupy him a week. Then, for the third time, he will level his kharif lands with the *vukkhur*, which will occupy him two days. He will now take two days in which to sow his *kharif* lands. In Shravan he will, for the third time, level his rabi lands, an operation which, with two *vukkhurs*, will take him eight days. He will now weed his kharif lands with a bullock hoe, which he will do in a day. In Bhadrapud and Ashwin he will enclose his fields with a hedge of thorns ; this work will take him and his family about four days. He will then sow his rabi crops ; this will take about sixteen days. His youngest boy will now watch the ripening bajri crop for fifteen days—the latter half of Ashwin. In Kartik and Margayswur one of his sons will watch the *kharif* crop during the first week, while he weeds his rabi crops with a bullock hoe. He now cuts his bajri, and this, with the help of his wife and two elder sons, he will accomplish in a week. He then requires about four days to bind the sheaves and to stack them. After that he will begin ploughing that portion of his field from which he has just removed the bajri crop : this will take him about twenty-seven days, or nearly a month. He will now separate the bajri heads from the stalks, which, with his family assisting, will occupy about seven days. In Paoosh he will thresh and winnow his bajri crop, which, with the assistance of his wife and one of his sons, he will do in about four days. He must now cross-plough his kharif lands, and this work will occupy him about twenty-six days. Now Magh has arrived, and the jowar has to be watched. Crops growing on high lands, where the roots cannot readily reach the sub-soil moisture, have now to be harvested, otherwise they wither. In this way, about five acres will be harvested. Before the month Phalgun the Kunbi has to reap thirty-five acres of his jowar crop. With his wife, two of his elder sons, and four labourers, he will execute this work in about a fortnight. With the help of his family, he must then bind the sheaves and stack them ; this will take him about four days. Afterwards carting the harvest yield to the threshing-floor will occupy about ten days. While he is so engaged, his wife and children will prepare the threshing-floor, plaster and smooth it with cattle-dung, and enclose it with thorns. In Chaitur and Vaisak the family break the jowar heads from the stalks, which occupies them about twenty days. The threshing can be done in about six days, and the winnowing will take as many more. Giving out *baluta* (village servants' shares) will occupy the cultivator about two days.

According to the above distribution of his time, the ryot and his family will be engaged in field work for the following number of days :—

Ploughing	53 days.
Harrowing with <i>magda</i>	7 "
Levelling with <i>vukkhur</i>	23 "
Sowing	18 "
Weeding with bullock hoe	5 "
Enclosing fields with thorns	4 "
Watching the ripening crops	30 "
Reaping	31 "
Carting	10 "
Separating heads of corn from the stalks	27 "
Giving out <i>baluta</i>	2 "
Threshing and winnowing	16 "

Total...231 days.

It will thus be seen that, out of the 365 days in the year, the field work will occupy the cultivator and his family 231 days, leaving 134 days to be otherwise occupied. Some of these must be counted for holidays, illness in the family, executing repairs at the homestead, and for various other duties. Yet, allowing for all these, the Kunbi has a few weeks left, which can be profitably employed by himself, or members of his family, in labouring for hire on other than his own fields, in carting, or on public works, when there are any going on in his neighbourhood.

Here it is desirable to describe the household good and utensils a Kunti of the class mentioned would require. The following is an inventory and valuation of what a ryot of this class generally has in his house :—

	Rs. s. p.		Rs. s. p.
5 <i>Thalis</i> , brass plates, large and small	5 0 0	1 <i>Musul</i> , pestle of heavy wood.....	0 6 0
5 <i>Vatia</i> , brass cups	2 0 0	1 <i>Sup</i> (grain-cleaner), 1 <i>Chalni</i> (sieve), &c.	0 2 0
1 <i>Bagona</i> , brass cooking vessel	2 4 0	25 <i>Ranjuns</i> and <i>mulkas</i> , earthen pots .....	.....
4 <i>Tapeli</i> , brass cooking vessel.....	3 0 0	1 <i>Has</i> , bed (strung and all)	0 8 0
1 <i>Tambee</i> , brass drinking vessel	1 0 0	2 Brooms	0 0 6
1 <i>Tawa</i> , iron plate on which bread is baked.	0 12 0	6 Baskets of sizes.....	1 0 0
1 Wooden <i>Kathot</i> for kneading	0 8 0	3 <i>Kunnig</i> , wattle bins for storing grain ...	0 4 0
1 <i>Chatu</i> , wooden ladle	0 0 6	4 <i>Ghatia</i> , small bells to be suspended round	
1 <i>Lana</i> , wooden stick for rolling out <i>polis</i>	0 0 6	bullocks' necks	1 0 0
1 <i>Shummai</i> , wooden lamp	0 0 6	1 <i>Phora</i> , leather bucket for drawing water	
1 <i>Phulli</i> , wooden plate	0 0 6	with rope	0 8 0
1 <i>Pulli</i> , brass ladle	0 8 0	1 Iron knife	0 1 0
1 <i>Chakki</i> , stone hand-mill	0 12 0		
1 <i>Pala</i> , stone on which condiments are			
ground	0 6 0		19 2 6

It will thus be seen that, in favourable years, the outturn of fifty acres of dry-crop land ought not only to keep a family of five in tolerable comfort and sufficiency, but should enable them besides to save a not inconsiderable sum, on which they can fall back in bad seasons. Unfortunately, the improvident habits of the Kunbis generally prevent them accumulating any reserve.

It will be interesting to estimate what would be the average outturn of food-grains and other crops, in a favourable year, in the district; what would be the amount of the food-grains consumed within the district itself; and what would be available for export. According to the returns for the year 1290 Fusli (A.D. 1880), the area under cultivation, including inam lands, may be roughly estimated at about 1,944,165 acres. Of these, the area under wet cultivation may be estimated at 76,853 acres, and that under dry crops at 1,867,312 acres. About one-half of the wet, and about one-fourth of the dry lands, are devoted to the cultivation of other than food-grain crops, such as sugarcane, vegetables, poppy, cotton, oil-seeds, and so forth. Deducting these from the total area, we have left 38,427 acres of wet, and 1,400,484 acres of dry land for the cultivation of cereals. Estimating the average produce per acre of dry land at six maunds (480 lbs.), and of wet land at twelve maunds (960 lbs.), we get an outturn of about 88,64,028 maunds, or 316,572 tons of food-grains for the whole district. Calculating the value of this produce, at the ordinary rate of fifty lbs. per rupee, the amount comes to Rs. 1,41,82,445. Estimating the value of the produce of the area set aside for the cultivation of other than food-grain crops at Rs. 25 per acre of wet, and Rs. 12 per acre of dry land, we get Rs. 65,62,586. Thus the sum total of the value of the entire outturn amounts to Rs. 2,07,45,031. The Government demand, including the estimated assessment on inam lands, amounts to about Rs. 18,91,270. According to this estimate, the proportion that the Government demand bears to the total produce is about one-eleventh.

We shall now form an estimate of the quantity of food-grains that would be required for consumption in the district, and the surplus that would be left for exportation. The total outturn of food-grains has been estimated at about 88,64,028 maunds. From this produce we have to make the following deduction :—

	Maunds.
1. Seed-grain calculated at the rate of 14 lbs. per acre of wet, and 10 lbs. per acre of dry lands	1 81,785
2. Wastage at 5 per cent.....	4,43,201
3. Consumption at 1½ lb. per head, per diem, for a population of 436,700...	29,88,666
4. Food of horses and cattle	2,70,000
	38,83,652

Surplus available for exportation—49,80,376 maunds, or 177,870 tons.

From the foregoing account, it will appear that the annual surplus left would be about 177,870 tons, which may be valued at Rs. 79,68,601. Much of

this surplus grain is exported to the British territories *via* Nandgaon, Chalisgaon, and Ahmednuggur.

The foregoing account is for the whole district. Partly following the plan adopted by C. A. Elliott, Esq., C.S.I., in his Mysore Famine Report, let us now see how this account bears on the agricultural population itself. Excluding village artisans, and others who do not directly labour on the land, the agricultural population has been estimated at about 222,262 souls. Deducting from the total outturn of food-grains the quantity required for their consumption, for seed and for wastage, we have left 67,17,937 maunds, or 239,926 tons of grain, which may be valued at Rs. 1,07,48,699. The value of the other description of crops, after deducting ten per cent. for seed and wastage, may be set down at Rs. 59,06,327. The total value of the entire outturn may, therefore, be estimated at about Rs. 1,66,55,026.

From this we have to deduct the Government demand, which, as has been stated above, amounts to Rs. 18,91,270. Next we have to deduct the expenses of cultivation. In calculating this, it should be remembered that we have deducted from the entire outturn the quantity required for consumption, for seed, and for wastage; besides this, the value of the jowari and bajri stalks has not been calculated. Allowing for this, we may estimate the expenses of cultivation at about 10 per cent. of the *entire* outturn.

Deducting, then, the Government demand, and the expenses of cultivation, we get a balance of Rs. 1,26,89,253, which should be considered as the amount of profit left to the agriculturists. Distributing this sum on the total registered occupants, 37,118, with Inamdars, the amount left to each is about Rs. 342.

In bringing these pages to a conclusion, it must be stated that the estimates of outturn of grain given above are based upon the results of a favourable season, when the crops are, upon the whole, good. Indifferent and even bad seasons are, unhappily, not of unfrequent occurrence: for these no allowance has been made. The circumstances affecting cultivation are very numerous. The most important of these are climatic influences, which are proverbially capricious, and seldom preserve a happy mean. The excess or deficiency of rainfall, and, what is of even more importance than the quantity, the manner in which it is distributed during the sowing, growing, and gathering seasons, are difficulties to which the Indian agriculturist is peculiarly liable. Such troubles are common to all tillers of the soil in all parts of the world, but nowhere are they so pronounced as in India. The manner in which the cultivator works is second only in importance to the climatic influences. His ignorance sometimes, but more often his carelessness, results in injury to himself, and perhaps in a loss to the State. All these and other kindred facts the reader is requested to bear in mind as he peruses these pages.

When it is remembered that more than three-fourths of the rural population of the Deccan are intimately connected with, or in some measure interested in, the cultivation of the soil, the importance of our subject will be readily understood. We have, however, been compelled to content ourselves, as stated in the Preface, with a description of things as they exist, or as we honestly believe them to exist. From a discussion of the highly important points which are directly raised or suggested, we have of set purpose abstained. Our present task did not embrace the suggestion of remedies for admitted evils or inconveniences. Had it done so, the writer would in all probability have shrunk from the duty. How to lighten the burdens necessarily borne by the agriculturist; how to fortify him against bad seasons; how to induce in him more provident habits; how to increase his knowledge and intelligence; how to secure to him the full advantages of the Savkar's capital and yet prevent him becoming the money-lender's bond-slave—these, and many other kindred aspects of the most serious problem which Indian Statesmen and Administrators have to solve, must be left to a wider experience and fuller knowledge than the present writer possesses.

The following extract is taken from *Murray's Handbook of the Madras Presidency* (second edition), pp. 356 to 408, by E. B. EASTWICK, Esq.

ROUTE 31.

GUNDAKAL TO RAICHUR, 77 MILES BY MADRAS RAILWAY, 6 RUPEES.

Names of Stations.	Distance in Miles.	Trains.	REMARKS.
		A. M.	
From Gundakal to		7 50	The names of the stations are all written up in English, and not in any Oriental character. The line passes through a vast level plain with low hills in the distance.
1. Nancherla	8	8 12	Station on river.
2. Auspri	13	8 51	
3. Adoni	13	9 34	S. on r.
4. Kosgi	17	10 21	S. on r.
5. Tungatabadra	9	10 45	S. on r. The r. here is about 700 yards broad.
6. Matnarri	6	11 1	S. on r.
7. Raichur	11	11 30	S. on r.
Total...	77	3 40	

At *Adoni*, often spelled by Orientals *Adhwani*, there are refreshment rooms. The town is of some historical interest. In 1871 the pop. was 22,429, of whom 40 per cent. were Muslims. According to tradition it was founded 3000 years ago by Chandra Singh of Bidar. Early in the 16th century it was taken by Krishna Rayalu of Bijanagar. His successor, Ram Raja, received it as a dowry with his wife, and appointed his brother governor. After the battle of Telikot in 1564 the Sultan of Bijapur appointed Malik Rahman Khan, an Abyssinian, to govern it, which he did for 39 years, and died there. His tomb on the Talibanda hill is still an object of religious veneration, and Government allow a small sum for annual repairs. He was succeeded by his adopted son Sidi Mas'and Khan, who built the lower fort, and the fine mosque known as the Jum'ah Masjid, at a cost of 2,00,000 rs., and the suburb of Babanagar, called after his son. About the same time his minister, Venkanna Pantulu, built the large square well close to the mosque. At this time the revenue of Adoni district was 6,00,000 rs., and it maintained an army of 12,000 men. In 1690 Adoni was taken, after a desperate resistance, by one of Aurangzib's generals, and afterwards fell to the Nizam. Salabat Jang granted it in jagir to Basalat Jang, his younger brother, who made it his capital, and endeavoured to form an independent State. He died in 1782, and was buried at Adoni, and a fine mosque and tomb were erected over his grave and that of his mother. Government grant 1,200 rs. yearly for the support of these buildings and the charities connected with them, but the edifice has gone sadly to decay. In 1786 the citadel was captured by Tipu after one month's siege. He demolished the fortifications, and removed the guns and stores to Gutti. In 1792 it was restored to the Nizam, and exchanged by him with the British in 1800 A.D. for Kopala, Kanagiri and other places. The citadel is built on five hills, of which the best known are the Barakila and the Talibanda, both of which rise 800 ft. above the plain. Halfway up the rock is a fine tank containing good water and never dry. On the summit of the Talibanda is a fig tree which stands alone, and is seen for 20 or 30 m. round.

Raichur formed part of the dominions of the Bahmani kings in 1357. It was included in the government of Bijapur (see Grant Duff vol. i., p. 65), and was governed in 1478 by Khwajah Jahan Gawan. When Bijapur became an independent kingdom Raichur was its S. capital. In 1662 we find it in rebellion against 'Ali 'Adil Shah of Bijapur, and captured by him after an obstinate resistance. The rooms for the rly. staff are very comfortable, and there is a large bedroom in the upper story which is cool and has a good view. The first thing to be done is to see the *Fort*. The distance from the rly. stat. is about $1\frac{1}{2}$ m. to the N. gateway. N. of this gateway is a considerable suburb, and between the two a wide rd. and some trees intervene. There are also trees near the gate. The local authorities say that the English burned the doors and burst all the guns. This gate is 33 ft. 1 in. high to the *Kunguraks*, or battlements, which are 3 ft. more. Two towers, one on each side, project about 10 ft., and are 10 ft. higher than the gate, but both have been much injured. Above the gateway is written in Arabic, "Help is from God, and Victory is near," then follows the creed, and "In the reign of Sultan Ibrahim 'Adil Shah, on the 1st of Ramazan, A.H. 977, this was built." There is also the insignia of the Fishes carved on the wall. Below are 2 figures of rhinoceroses very roughly executed. There is also a stone elephant, not quite the natural size, carved out of a boulder, about 50 yds. outside the gate, represented as chained between 2 young ones. At rt. angles to this gate is another called the *Kasbah Darwazah*, and between the 2 are rooms in the wall for soldiers of the guard. Outside this gate is a door like the mouth of a cave, which is the door of a tunnel out of which the garrison came to close the gate, and then retired by the underground passage into the *Fort*. The moat has been deep, but is now nearly filled up, and crops are grown in it, but in some places there are pools of water. In the centre of the *Fort* is an old roughly built minaret, near which is a hospital. The minar is 50 ft. high, and is ascended by 42 very high and difficult stairs. At bottom is a mosque of Ibrahim 'Adil Shah's time. A large black stone lies here, broken in 3 pieces, which bears the date 973 A.H. The W. gate is called the *Sikandariyah*, and near it is the old palace, with immensely thick walls. It is now turned into a jail. On August 20th, 1875, there were 73 prisoners. Capital punishment here is inflicted by decapitation.

The *Citadel* ought to be ascended for the sake of the view. The ascent commences from near the N. gate. The hill on which it is built consists of immense boulders of rock, and is over 500 ft. high. The path up is broken into a series of great stones, some flat and some jagged, and with a chasm at one place which could not be passed in the dark. Women are in the habit of going to the top to pray. About $\frac{2}{3}$ of the way up is a gate, and then the path becomes smoother, with fine trees growing here and there. There is a 2nd gate at top with a big stone like a milestone in the centre of the doorway. On the rt. is a bastion, on which is a gun 20 ft. 7 in. long. It is of the metal called *lungri*, and has lost its breech. On the l. is a row of cells belonging to the *Dargah* or shrine, and at the E. end, overhanging the precipice, is a stone pavilion. At a short interval from this on the E. side is the *Dargah*, a mosque 18 ft. high, to which one mounts by a flight of 4 steps. Not far from this on the S. side is a place for a bell or gong 7 ft. high, with 4 stone supports and a stone roof. The bell or gong has long since been removed. The whole surface of the top is 70 ft. square, and there is a fine view all over the city as far as the *Tungabhadra*, which is 26 m. to the S., and to the *Krishna*, 12 m. to the N. It is a place where a whole day might be spent very pleasantly in reading and sketching. On the N. is a fine tank, another still larger to the E. called the *Machchar Talau*, about 4 m. off. The visitor will not fail to remark the freshness of the walls of this fort, which, where the walls remain perfect, looks as if it had been built a few years ago instead of centuries. The names of the gates at Raichur are, the *Fath* or *Kanta* on the S.; 2, its inner gate called the *Kasbah*, the *Kula* on the W., the *Nan rang*, the *Khas Baoli*, the *Sikandariyah*, the *Hilai*.

ROUTE 32.

RAICHUR TO KALBARGAH (GULBARGAH), 89½ M. BY MADRAS RAILWAY, 8 Rs. 7 As.

Names of Stations.	Distance.	Trains dep.	REMARKS.
	M. F.	P. M.	
From Raichur to		12 10	
1. Chiksagar	10 2	12 42	S. on r. The l. passes through a level country, but with high hills, of which Yadigiri is the most remarkable, to the right. There are bears and panthers on this hill. W. of Chiksagar about 3 m. is a hill where diamond mines have been worked.
2. Krishna	5 4	1 7	S. on r.
3. Saidapur	12 4	1 45	S. on r.
4. Yadigiri	14 4	2 27	S. on r.
5. Nalwar	15 6	3 11	S. on r.
6. Wadi	7 6	3 33	S. on r. Here is the Junction with the Haidarabad l., and the Nizam's State Railway begins.
7. Shahabad	7 0	{ 3 51 }	S. on r.
8. Kalbargah	16 4	{ 4 1 }	S. on r.
		4 43	
Total.....	89 6	4 33	

In *Kalbargah* the traveller will see a most interesting place, which has been less visited, perhaps, than any place in India of equal claims. One of the few visitors who examined it with attention is Sir A. Gordon, who made a plan of the most remarkable mosque, which will be found in Mr. Fergusson's "Architecture," p. 554, and a view of it occurs in the next page. This mosque appears to be the one in the Fort of which a description follows, and if so the singularity of its roof is explained by its having been converted from a Hindu place of worship into a mosque. Mr. Fergusson says: "During the short supremacy of Kalbargah as capital of the Dakhan (A.D. 1347—1435) it was adorned with several important buildings, among which was a mosque, one of the most remarkable of its class in India. Its dimensions are considerable, though not excessive; it measures 216 ft. E. and W., and 176 ft. N. and S., and consequently covers 38,016 sq. ft. Its great peculiarity, however, is that, alone of all the great mosques in India, the whole of the area is covered over. Comparing it, for instance, with the mosque at Mundu, which is the one in other respects most like it, it will be observed that the greater part of its area is occupied by a courtyard surrounded by arcades. At Kalbargah there is no court, the whole is roofed over, and the light is admitted through the side walls, which are pierced with great arches for this purpose on all sides except the W.

"Having only 1 example of this class, it is not easy to form an opinion which of the 2 systems of building is the better. There is a repose and a solemnity, which is singularly suited to a place of prayer, in a courtyard enclosed by cloisters on all sides, and only pierced by 2 or 3 doors; but, on the other hand, the heat and glare arising from the reflection of the sun's rays in these open courts is sometimes most painful in such a climate as India, and nowhere, so far as I know, was it ever even attempted to modify this by awnings. On the Kalbargah plan, on the contrary, the solid roof covering the whole space afforded protection from the sun's rays to all worshippers, and every aisle being open at one or both ends prevented anything like gloom, and admitted of far freer ventilation than was attainable in the enclosed courts, while the requisite privacy could easily have been obtained by a low enclosing wall at some distance from the mosque itself. On the whole my impression is that the Kalbargah plan is the preferable one of the two, both for convenience and for architectural effect, so much so indeed that it is very difficult to understand why, when once tried, it was never afterwards repeated. Probably the cause of its being abandoned was the difficulty of draining so extensive a flat roof during the rains. Any settlement or any crack must have been fatal; yet this mosque stands in seemingly good repair after 4

cen. of comparative neglect. Whichever way the question is decided it must be admitted that this is one of the finest of the old Pathan mosques of India, at least among those which are built wholly of original materials—and in the arcuate style—of Muhammadan art."

He adds, "There are other buildings, especially 1 gigantic archway, in the city of Kalbargah, the use of which is not apparent, and some very grand old tombs with sloping walls; but we must wait for further information before they can be utilized in a history of Indian architecture."

For some m. before reaching Kalbargah from the Raichur side the dome of Gisu Daraz's mosque and other buildings are visible, though in parts hidden by trees. They are distant in a direct line from the rly. rather less than 2 m. The trav. bung. is distant from the stat. about $\frac{1}{4}$ m. It is a comfortable one, and the P. O. is between the rly. stat. and it. The Talukdar's house is 350 yds. N. E. of the t. b. Without his assistance it will not be easy to visit the sights of Kalbargah, and politeness requires that a call should be made upon him. The first thing to be seen is the *Dargah*, or shrine of *Bandah Nawaz* or Gisu Daraz, whose name in full is Hazrat Kutbu'laktab Saiyid Muhammad Husaini: "His Holiness the Pole of Poles Saiyid Muhammad Husaini. This is about $1\frac{1}{2}$ m. E. N. E. of the t. b. The rd. passes through a suburb of low houses with very thick walls of loose stones, and enters the town, when on the rt. you ascend a flight of 25 steps and find yourself at the *Dargah*. On your rt. as you ascend the steps you have a plain old-looking mosque with 2 minars 50 ft. high. At the steps every one must take off his shoes, and will soon find the small sharp stones and the pavement of the enclosure the reverse of pleasant. As you enter the spacious paved enclosure the domed Mausoleum or *Dargah* of the Saint is a few yds. on the l. It is a plain white Gumbaz about 80 ft. high, and some pious and learned men sit at the portal and inside reading and meditating. No unbeliever may step on the stone before the threshold, much less enter the tomb. There are several trees in the enclosure, and 1 of them very old indeed and much decayed. The Saint came to Kalbargah in the reign of Firuz Shah, who died 836 A.H.=1486 A.D. Parallel with the Gumbaz of the Saint is one where his grandson is buried, and both have silver shrines gilt, with ostrich eggs suspended above them. S. of the Saint's tomb is that of his eldest son, Muhammad Akbar Husaini, who died 12 yrs. before his father. Over the door is the *Kalimah* and 2 *Ayats*. S. of the enclosure is a very handsome Nakar Khanah or music gallery, and in the storey below a Karwansarai or house for travellers, with a *Madrasah* or College on the rt., and a mosque, all of stone and exquisitely carved. This was b. by Aurangzib, who stayed at Kalbargah a long time. Within the *Dargah* of the Saint several pious verses from the Kuran are written in letters of gold, implying that just and holy men have nothing to fear, and that death has no dominion over them. There is also a Persian distich:

"Like that of Gisu Daraz the Dakhan boasts no shrine!
Gisu Daraz! the empire of Islam and of this world is thine!"

The date of the Saint's death is given in the symbolical letters which compose the words "Makhdum i din va dunya," "Lord of the Faith and of the world." On the door of the *Dargah* is written the *Kalimah* and blessings on Fatimah, 'Ali, and their sons, and this distich:

"The lamp, mosque, arch and pulpit in thee see,
Abubakar, 'Umar, 'Usmau, and fourth 'Ali."

Bandah Newaz is called the "Sun of the South," as the Chishti buried at Ajmir is called "Sun of the North," and is equally venerated.

The tombs of the Bahmani Kings buried here are the next thing to be seen, and are $\frac{1}{2}$ m. to the S. The first is that of Sultan 'Alau'd din Hasan Gangu Bahmani Shah, as the name is written by the learned of Kalbargah, but it is not inscribed on the tomb. He died in 749 A.H.=A.D. 1359. The Gumbaz is 70 ft. square inside, and about 100 ft. high. It is very plain, with one or two inscriptions in Arabic. It never could have been of value as a work of art, and is now very much out of repair. It stands on the brink of a tank called *Rozah*, in honour

of the Saint's Dargah, Rozah being Paradise. The stone lattice-work in the windows has been well executed, but is now broken. Beyond this to the S. is a very solidly built small Gumbaz, which is to be repaired, and beside it is another unfinished. It is not known of which kings they are the tombs. To the W. are several other plain edifices of the same kind, plastered with cow-dung and turned into stables for horses. All these are in a suburb of the town. On the W. is a gateway, and the nearest Gumbaz on the l. is said to be that of Ahmad Shah, but this is a mistake, for he is buried at Bidar, in a far handsomer mausoleum than any here.

After this the *Fort* may be visited. It lies $1\frac{1}{2}$ m. to the W. by S., and is far stronger than that at Bidar. The wall here is quite 30 ft. high, and the bastions and walls near the gate rise to 50 ft. The entrance coming from the tombs of the Kings will be by the Daulat Gate, which is, in point of fact, five gates, with zigzags between and guard-rooms for soldiers. The outer wall is 50 ft. high, and the ditch 10 ft. deep, with water at that part which is on your l. as you enter. The ditch is dug out of the solid rock. There is an inscription over the door, but too high to be legible. The massive wooden doors of the gate are bound with iron, and from 6 to 10 ft. from the ground are studded with spikes of iron 6 in. long, to prevent elephants from pushing against the door. After this, almost at right angles, comes the 'Adalat Gate, in the wall of which are stones taken from a Hindu temple, for they are sculptured with the figures of Hindu deities and elephants. They are on your rt. as you enter. Between this gate and the 1st or Daulat Gate, which is also called the Zanjir, is an inscription in Persian, which says that the Daulat Burj, as it is here called, or Bastion, was built in 951 A.H. by Haidar, an officer of Abu'l Muzaffar Ibrahim 'Adil Shah. Next comes the Habshi Gate, and then follows the Husaini, and then the Sira. Altogether this is one of the strongest defences of the kind existing in India. Besides this gate of 5 gates there are 2 other gates into the fort, one to the E. and the other to the W., but they are now closed up. About 300 yds. from this gate in a S. E. direction is a bastion called that of the twelve-yard gun. It is a strong bastion 40 ft. high, and in it is a cannon made of the blue metal called *Bangri*, 26 ft. long, 7 ft. 6 in. round at breech, and 6 ft. at mouth. The bore is 11 in. in diameter. The gun has 20 pairs of iron rings attached to it, probably for lifting it. There are other smaller guns in the Fort. Rather less than $\frac{1}{4}$ m. to the E. of this bastion is a stone building 212 ft. 6 in. from E. to W., and 166 ft. 9 in. from N. to S., supported by 100 stone pillars, the inner ones being 3 ft. 9 in. thick, and the outer 7 ft. The room is about 35 ft. high. The floor is in a most filthy state, as cattle are penned here, but this is the temple of Raja Kalchand, which the King Gangu Bahmani converted into a mosque. In the centre, from the number and thickness of the pillars, it is rather gloomy, but the aisles, from the open arches, are light. From the top of this building or from the bastion it can be seen that the whole interior of the fort is a mass of ruins, but a few people live in it, and also, it is said, a good many panthers. There is a bazar 570 ft. long by 60 ft. wide, with 61 arches on either hand, with pillars said by Mr. Fergusson to be "of a quasi-Hindu character, and with a block of buildings of a very ornamental character at either end." There is also a gigantic archway.

The next visit will be to the Dargah of the ecstatic Saint Ruknu'd din, a contemporary of Bandah Newaz. It stands on a hill 3 m. from the town to the N. E. For $\frac{2}{3}$ of the way there are buildings with cupolas, tombs of departed worthies, and ruins. Opposite the steps by which the hill is ascended there is a stone block and some smaller stones, on which you have to take off your shoes. It will be well to put on thick socks here. You mount 42 steps, and then come to a paved slope which leads to the summit of the hill, where are a stone pillar for lamps, a small mosque, and the tomb of the saint, who was surnamed *Tola*, or "Weigher," because he weighed 2 spotted deer that Bandah Newaz sent to him. But with what object he weighed the animals we are not informed. The tomb is covered with a silk cloth. There is an extraordinarily superstitious feeling attached to the place. Even men of education will try the *sortes Virgilianæ* before going,

and nothing will induce an inhabitant of the locality to stop at the tomb during the night. If any one does stop he is said to be hurled headlong down the hill. It is more than probable that wayfarers have been attacked by wild beasts here, and this has given rise to the superstitions.

From this tomb a very bad road leads after a m. or so in a S. E. direction to the ruins of old Kalbargah. The dirt and the huge stones render locomotion very difficult. Here are the Dargah and tomb of Siraju'd din, who was the spiritual adviser of Bandah Newaz, or at all events preceded him in authority at Kalbargah, and is said to have lived to the age of 111. The mosque has 2 black minarets about 70 ft. high. Over the door is written some honorific titles of the saint. The present inheritor of the sacred office, Sahib i sujjadah, as it is called, is Shaikh Muhammad 'Alau'd din Junidi, a very handsome old man, who dresses in a red robe. He says that Kursh, 18 kos from Kolhapur, and Mirich, 8 kos from it, belonged to his family. Aurangzib seized the greater part of his ancestor's lands. He also claims for a still earlier ancestor that he it was who bestowed on Hasan Gangu the kingdom. On the way back to the t. b. a visit may be paid to the Juma'ah Masjid, a low structure with a great quadrangle. The Nizam's Government have spent 1,800 rs. in repairing it, and the N. side has now 96 pillars of stone. It is a vast plain building.

ROUTE 33.

KALBARGAH TO HAIDARABAD, 138 M. BY NIZAM'S STATE RAILWAY, 11 Rs. 15 As.

Names of Stations.	Distance.	Trains.	
KALBARGAH to		A.M.	
		dep. 8 13	S. on l. A pretty stat. with large show of flowers.
1. Shahabad	16	8 54 dep. 10 0	S. on l. Middling-sized town.
2. Wadi Junction.....	7	10 25	S. on l. Junction with the Raichur l. here.
3. Chittapur	9	11 0	S. on l. Fine stat.
4. Siram.....	14	11 48	S. on r. X 2 r. to Illahpur and 2 forts on l. Low jungle.
5. Illahpur	10	12 25	S. on l.
6. Taudur	10	12 58	S. on l. Large town; beautiful avenue of trees on r.
7. Darur.....		1 46	S. on l. x stream by very handsome granite bridge.
8. Illampalli	13	2 47	S. on l. Low jungle.
9. Rattapur	17	3 54	S. on l.
10. Lingampalli	13	4 44	S. on r. Forest ends here.
11. Haidarabad	15	5 33	S. on l.
Total,		12 20	

From Illampalli to Lingampalli, 30 m., a low but thick forest extends, in which are many tigers and panthers, and a few bears. In the last 20 years the tigers have been very much thinned down by English officers. Colonel Hastings Fraser, for instance, has killed nearly 100. These animals used to come quite to the outskirts of Haidarabad itself, but now they must be sought for miles away. The tiger here is a handsome and formidable animal, but not so large as in Lower Bengal, especially the Sundarbans, and in the forests round the Nilgiris. Thus, out of nearly 100 Haidarabad tigers it has been found that not one exceeded 350 lbs. in weight.

Haidarabad, the capital of the Nizam's country, in lat. $17^{\circ} 15'$, and long. $78^{\circ} 35'$, stands on the S. side of the Musi r., which more than once in the rains has swept down part of the walls and inundated the adjoining quarters of the city. In the summer, however, it has but a few feet of water. The pop. of Haidarabad, exclusive of the Residency and its bazars, but including several populous suburbs, is reckoned at 400,000, but no exact census has been taken. The State of which Haidarabad is the capital covers 98,000 sq. m., with a pop. of 12,000,000, and is by far the largest Native State in India. It is divided into 4 great provinces, Haidarabad, Bidar, Aurangabad, and Birar, or Elichpur. Of this fine territory the

HYDERABAD AFFAIRS.

province of Birar has been placed under the control of the British Government, and the Resident wields the power of a local government without any reference to H. H. the Nizam at all. The area thus controlled amounts to 18,000 sq. m., so that 80,000 m. remain under the direct administration of Sir Salar Jang and the Shamsu'l umara, who are the regents for the Nizam during his minority. The revenue of Birar is collected to pay the Haidarabad Contingent, a force of 5,000 infantry, 2,000 cavalry, and 4 field-batteries of artillery, commanded by British officers. The services of this force are to be given to the Nizam in case of rebellion against his authority. The Nizam's territory is now on all sides surrounded by that of the British, on the E. by Nagpur, on the N. by Sagar, on the W. by Sholapur and other districts of the Bombay Presidency, and on the S. by Ballari and other parts of the Madras Presidency. The Godavari r. almost bisects the Nizam's dominions, and the Varada is the boundary on the N. E. until it joins the Wain Ganga. The united rivers, under the name of Pranhita, continue the boundary, until they fall into the Godavari near Sirunch. After this the Godavari forms the E. limit. In the same way the Tungabhadra is the S. limit until it joins the Krishna, whence that river continues the boundary as far as the E. Ghats. The drainage is entirely from W. to E.

The sub-divisions and chief towns are as follows :—

Taluks or Districts.	Chief Towns.	Dist. from Madras.	Dist. from Hyderabad.	Taluks or Districts.	Chief Towns.	Dist. from Madras.	Dist. from Hyderabad.
HAI DARABAD.				BIDAR (BEDDER).			
1. Pangal	Pangal	308	98	1. Kalbargah (Kal- berga or Gul- barga)	Kalbargah	430	120
2. T'edgarh	T'edgarh	332	64	2. Naladurga (Nal- drug) ..	Naladurga	561	160
3. Ghanpur	Ghanpur	376	112	3. Akalkot	Akalkot	510	100
4. Dawarkonda	Dawarkonda	334	64	4. Kaliyani	Kaliyani	469	80
5. Nalgunda	Nalgunda	335	160	5. Bidar	Bidar or Muham- madabad	600	212
6. Kamnamet	Kamnamet	410	112	6. Nanchira	" ..	"	"
7. Warangol	Anamkonda	374	48	7. Pahtari	Pahtari	"	"
8. Bongarh	Mutakurur	395	6	BERAR.			
9. Golkonda	Fort Golkonda ..	350	76	1. Baitalbari (Aja- yanti)	Songaon	"	300
10. Koilkonda	Koilkonda	350	76	2. Narnala	Fort Narnala ..	"	346
11. Malkar	Malkar or Mu- zaifarnagar	350	88	3. Gualgarh (Ga- welgurh)	Fort Gawel	"	360
12. Maidak	Maidak	445	60	4. Maikar (Maik- ker)	Maikar	646	240
13. Kaulas	Kaulas	483	90	5. Wasim (Waus- sim)	Basim	625	320
14. Elgandal	Elgandal	460	64	6. Malwar (Ma- hore)	Mahur	656	260
15. Malangarh	Akour	460	104	7. Kalam (Kullam). ..	" ..	"	350
16. Ramgarh	Chimur	490	192				
AURANGABAD.							
1. Baglana	"	490	"				
2. Daulatabad	Daulatabad	706	300				
3. Jalnapur	Jalnah	656	240				
4. Bhir	Bhir	640	234				
5. Fathabad	Fathabad or Dharur	597	180				
6. Perainda	Perainda	590	200				

After emerging from the jungle between Illahpur and Lingampalli the line for the last 15 m. to Haidarabad passes through a singular country, which looks as if a deluge had taken place, and had washed the rocks into all sorts of fantastic forms, and then left them dry. In some places 8 or 10 flat rocks 20 or 30 ft. across, and from 5 to 15 ft. thick, are piled one atop of the other, and very often the largest is superimposed on the others. Thus Haidarabad is surrounded with a barrier of stone and a barrier of jungle, so that it has been difficult for an enemy to find supplies in the neighbourhood, and that is perhaps one reason why the Marathas, although they more than once attacked Haidarabad, never succeeded in taking it. The stone belt extends from 18 m. on the W. of the city as far E. as Bhunigaon, 28 m. E. of Haidarabad. The rly. after leaving Wadi Junction runs E.N.E. to Trimalgarhi, which is 8 m. N. by E. of the city of Haidarabad.

The line then runs S. to the Residency, which is 1 m. N. of the city and separated from it by the Musi r. With his usual good taste Sir Salar Jang has arranged a very beautiful public pleasure ground 350 yds. N. of the stat. In this garden are 2 pavilions, and at one end a menagerie with some fine tigers and bears. There is also a piece of water in the grounds. The garden has 3 gates, N., W. and E., but the N. gate is the principal. Dominating the N. part of the garden is a black rock called Nambat Pahar, "the Guard Rock," which is very picturesque.

The first visit which the traveller should make after having located himself, which he can do at the stat., or at the t. b. at Sikandarabad, for there is no t. b. at Haidarabad, should be to the *Residency*. This building stands N. W. of the city about 1 m., in a suburb which is called Chadar Ghat, and is surrounded by a Bazar containing 12,000 inhabitants. The grounds are extensive, and full of grand old trees, and are enclosed by a wall, which was strengthened by Colonel Davidson after the attack upon the Residency on the morning of July 17th, 1857. That attack was made by a band of Rohilas and others, headed by Jamadar Turabaz Khan and Maulavi 'Alau'd din, and was repulsed by the troops at the Residency under Major Briggs, Military Secretary. The Jam'adar was shot dead, and the Maulavi was taken prisoner and transported to the Andamans. Bastions were then erected commanding the approaches, but the place was not attacked again.

On the site of the Residency there was formerly a villa belonging to a favourite of Nizam 'Ali, and in it Sir John Kennaway, who was appointed Resident in 1788, was received. But the house was small and inconvenient, and in 1803, shortly before Nizam 'Ali's death, and while Aristu Jah was Minister and Colonel Kirkpatrick Resident, the present Residency was begun. After various interruptions it was completed during the time that Mir 'A'lam and Chandu Lal were Ministers, about 1808. The design was planned by Mr. P. Russell, son of the Royal Academician of that name, and an officer of the Madras Engineers, who also superintended the erection of the edifice, which is remarkable as well on other accounts as because it was constructed entirely by Indian workmen. The N. front, at which is the Grand Entrance, looks away from the r. Musi and the city. A flight of 22 gigantic granite steps, the lowest being over 60 ft. in length, having on either side a colossal sphinx, leads up to a magnificent portico 60 ft. long and 26 ft. broad, and having in front, supporting the roof, 6 Corinthian columns 50 ft. high. These pillars are coated with *chunam* of a dazzling whiteness. The 3 points of the Pediment are surmounted by statues, and the Company's arms in *alto rilievo* form the centre ornament. The interior of the portico and the cornices are richly carved. The pavement is an imitation in *chunam* of black and white marble. The lowest storey of the building consists of arches which elevate the reception-rooms to a level with the top of the steps and render them dry and cool. At either end of the portico is a sitting-room, 33 ft. long, that on the l. of the entrance being used as a library, and that on the rt. as a boudoir. Three lofty folding-doors lead into a stately hall 60 ft. long, 50 ft. high, and 33 ft. broad, with a gallery supported by 32 columns. Three splendid chandeliers hang from the ceiling; the furniture is of mahogany manufactured at Calcutta. In this hall is a picture of General Cubbon at one end and a portrait of the Raja of Maisur at the other. Between them is a picture of Chandu Lal in a white turban and robe. There is also a remarkably fine tiger-skin 10 ft. 4 in. long. S. of the grand room is a breakfast-room and another room in line with it. The floor of the grand room is of Sagwan wood in the centre and parquetered at the sides. S. of the building is a colonnade 10 ft. broad; it is handsome, and the S. entrance is fine. Two flights of 16 and 27 steps lead to the storey above the grand hall, where are rooms only used on State occasions. There is a banqueting-room 30 ft. 6 in. long, and 18 ft. broad, with a drawing-room 32 ft. long, and a bedroom at each of the 4 corners. These apartments blaze with gilding and the richest hangings. The mirrors between the windows reach from the ceiling to the ground. The chandeliers cost a prodigious sum, and the

lighting of the Residency in former times for a single reception night entailed an expense of £1000. On such occasions the crowd was so great and the number of those who tried to force an entrance so excessive that swords were often drawn, and it is said that blood was shed. While the male visitors were being received by the Resident, their wives were entertained in a mansion attached to the Residency, called the Rang Mahall. This was b. by Colonel Kirkpatrick, a former Resident, who married an Indian princess and b. this palace for her abode. It was enclosed after the Asiatic manner by high walls, the centre containing a large marble basin filled with water and fed by numerous fountains lined with stately cypress trees. The pavilions, galleries, and terraces around, were ornamented in the richest style of Oriental architecture, with a profusion of delicate trellis-work, painting and gilding. This, however, no longer exists. To the W. of the Residency is a private mansion for the Resident, where he can withdraw into complete privacy. There is also a house for the Doctor and one for the Military Secretary, and another for the 1st Assistant. Among the trees the visitor will remark 4 enormous specimens of the *Ficus indica*, the trunk of one measuring 30 ft. round. There is also a very gigantic tamarind tree. The Park contains an obelisk raised by the officers of the Russell Brigade to the memory of Lieut. William John Darby, who was killed on the 20th of August, 1815, within the city of Haidarabad, while gallantly leading the grenadiers in a charge against some rebels. Close to the Residency garden is a small cemetery, which is kept locked. Here is buried Eric Sutherland, Lieut.-Col., Military Secretary to the Resident, who died 27th of February, 1846. There is also the tomb of George Alexander Bushby, Resident at the Nizam's Court, who died at Bolaram, on the 30th of December, 1836, and a large domed building in the centre to Francis Sydenham, who was also Resident, and died 22nd of October, 1807. There is also the tomb of Sir William Rumbold, Bart., who died 24th of August, 1833. Remark also the tomb of Arthur Austin Roberts, of the Bengal C.S., who died Resident at Haidarabad on the 10th of May, 1868. Other tombs there are of less distinguished persons.

The next visit should be to the city itself, which is in shape a trapezoid, of which the N.W. side is more than 2 m. long, the S. W. side is 1 m. 1,220 ft. long, the S. side is about $1\frac{1}{2}$ m. The total area of the city is 2.18 m. On the N.W. side are 5 gateways, viz., on the extreme E. the Chadar Ghat gate, next on the W. the Dihli or Afzal Gate, next in the same direction are the Champa, the Char Mahall, and the Old Bridge gates in succession. In the S.W. side there is, 1st, the Dudhni gate, then the Fath, which is exactly in the centre, and then the Aliabad in the S. W. corner. In the S. side are the Gaulipur and the Ghaziband, and on the E. side are the Mir Jumlah, the Yakubpur and the Daudpur gates. The Musi r. on the N.W. side is crossed by 3 bridges. Furthest to the E. is the Oliphant Bridge, which was planned and erected by Colonel Oliphant, of the Madras Engineers, afterwards a director of the E. I. Co. This fine structure was b. in 1831 of square granite stone. It has 8 semi-elliptical arches, each of 56 ft. span and 18 ft. rise, with piers 10 ft. wide, and a land arch on the N. side of 77 ft. span and 16 ft. rise. It is 24 ft. wide on the roadway and cost £10,200. There is the following inscription: "This bridge was erected in the year of Our Lord 1831, by order of H. H. the Nizam Nasiru'd daulah Bahadur, and during the ministry of Raja Chandu Lal. J. Oliphant, Madras Eng., Architect."

The next bridge to the W. is the Afzal Bridge, called from the late Nizam, and then comes the Old Bridge. The traveller will cross the Afzal Bridge, but will stop on his way to see the Residency School, which is on the l. hand near the Residency. He will then go a little further and stop near the bridge to see the City Hospital, which is under the superintendence of the Residency Surgeon, and is called the Hospital of Afzal Ganj. An Indian gentleman, a native of Haidarabad, Muhammad Vazir, is the resident principal. After passing the archway of the entrance you will find a building for cases that require separation. The rest of the hospital is only 1 storey high. The right wing is devoted to 50 poor patients, who are fed as well as treated. The accommodation consists of 14 apartments,

besides 3 rooms for a better class of patients, who pay for their own food. In the centre of the quadrangle is a basin of fine pure water brought from a source 3 m. distant in pipes, for the Afzal Mosque, which adjoins the hospital to the N. and is a noble building with four lofty minarets. The hospital dispensary supplies 150 out-door patients with medicines daily. Professor Muhammad Vazir is a first-rate operator, as is certified by the Residency Surgeon, and also by the numerous articles in the museum showing the operations he has successfully performed. On the other side of the rd. is a hospital for women, which for some time was presided over by an American lady. This establishment can be inspected by ladies only. After crossing the bridge and entering the Afzal Gate you arrive in a broad street which runs from it completely through the city. After a few hundred yds. you come to the palace of the Nawab Mukhtarul mulk, Sir Salar Jang Bahadur, G.C.S.I., who has been Prime Minister of the Nizam's Government since 1853, having succeeded his uncle Muniru'l mulk in that office. Sir Salar has thus been the virtual governor of a country not very much smaller than Great Britain, and as populous as England was at the time when William Pitt succeeded to power, in 1783, for 26 years. Considering that the city of Haidarabad contains many thousands of Rohillas and Arabs, the most mutinous and sanguinary of men, it will be seen that Sir Salar has displayed extraordinary abilities in administering the country and in restraining turbulence, with little or no recourse to severe measures. Sir Salar's palace is called the Barah Dari, a common name for palaces, literally "12 doors." The great drawing-room is very richly furnished, and contains a number of portraits of former Residents and other distinguished personages. It looks upon a small piece of water with fountains. The gardens are tastefully laid out, and in the stables are many beautiful and valuable horses. Sir Salar sometimes permits distinguished visitors to mount his own riding elephant in order to see the city, and this means of locomotion is by far the best. Sir Salar's elephant Khudadad is perhaps the largest in India, and is 11 ft. 6 in. high. Seated on the *haudaj* a person's head when riding this elephant will be upwards of 15 ft. from the ground, so that he will be able to see over the crowd to long distances. Proceeding along the central street at about $\frac{1}{4}$ m. from the Afzal Bridge, one comes to the Char Minar, a magnificent rectangular building with 4 minarets 186 ft. high. Just before reaching it one passes under an arch which is called the *Machhi Kaman*, or "Arch of the Fish," that being an insignia of high rank. There are four arches 50 ft. high at this point across the street, one to each quarter of the compass. Here, too, is a small garden called the *Gulzar* or *Charsu*. Each side of the Char Minar measures 100 ft. in length. It is said that the building was once a college, but if so it must soon have been disused for that purpose, as the rooms are a very great height from the ground, and now they cannot be ascended, as from them there would be a view over the Nizam's Palace. A little to the E. of the Char Minar is the Makkah Mosque, the principal mosque in the city, and so called from its resemblance to the mosque at Makkah. It is a grand but sombre building, with four minars and 6 arches in front. The minars are 90 ft. high, and the façade of the mosque 70.

The Nizam's Palace.—Turning off from the W. side of the Char Minar down the *Chauk*, a broad street, you arrive at the *Nizam's Palace*, and passing under a gateway you find yourself in a quadrangle about the size of that of Christchurch, with buildings on either side about 40 ft. high. At the S.W. corner of this there is a lane which leads into a 2nd quadrangle, in which are generally about 2,000 servants, horsemen, &c.; a passage from the S.W. corner of this leads into a 3rd quadrangle, about the size of Lincoln's Inn Fields, where 1,900 or 2,000 attendants are generally to be found. The buildings on each side are handsome and resemble the Shah's palace at Tehran, but are finer. Visitors here dismount from their elephants, and are received by the Chamberlain, who wears a white robe. They are conducted into a handsome pavilion, filled with courtiers, handsomely furnished and with 5 immense chandeliers. Here H. H. the Nizam 'Mahbub 'Ali Khan receives visitors. H. H. is now 13 years old, and is very intellectual-looking. He understands and writes English. It is said that the palace contains 7,000 persons.

During the Muharram II. H.'s troops to the number of 30,000 pass in procession in front of the palace, and the spectacle is altogether a very magnificent one. The procession takes place on the 10th of Muharram, and is called the *Langar*, and is said to be in honour of Kutbu 'd din Kuli Shah, the sovereign who built the Char Minar and the Makkah mosque. Various stories are told about this procession. It is said that *Langar* means the chain with which a *Mast* elephant is confined, and that Kutbu 'd din Kuli Shah was run away with by his elephant, which suddenly became furious and rushed about for 3 days, keeping the king without food and in peril of his life. On the 3rd day it became tractable and the *Langar* was fastened on it. In a side street 200 yds. beyond the palace is the house in which the well-known minister Chandu Lal died. It is a low but highly ornamented Hindu house. Beyond the Chauk, where all the bazazis, or mercers, live, and near the W. wall of the city, is the vast palace of the Barah Dari, which was built by the Shamsu'l umara, father of the present nobleman so entitled. From the top of this palace there is a fine view over the city. To the W. Golkonda Fort is seen, and the Mausoleums of the kings close by it. A silver streak between marks the position of the Mir Alam tank. One can see also the Pul i Purana or Old Bridge. To the S. the *Jahan Numa* palace is visible, and a mosque built by the Amir Kabir. To the N.E. is the palace of the Nizam, an immense building, covering perhaps $\frac{1}{4}$ of the whole space within the city walls. Beyond this appears the Makkah Mosque, and beyond that again the Char Minar. There are a great number of trees within the city, and probably not more than 200,000 inhabitants. In this palace are shown the arms and armour of Abu'l Fath Khan Bahadur Tigh Jang Shamsu'd daulah, Shamsu'l mulk, Shamsu'l umara, grandfather of the present colleague of Sir Salar, who since the death of his brother bears the title of Shamsu'l umara. Abu'l Fath was a gigantic warrior, measuring over 6 ft. 5 in. His picture is shown, and is evidently that of a very large man on a very large horse. His steel cap is of a peculiar shape, with a bar to guard the nose, and weighs 20 lbs. It covers the head and face of an ordinary man. His coat of chain armour has an inner vest of rings and an outer one of bars, and weighs from 70 to 80 lbs. The sword has a blade 4 ft. 8 in. long and 4 in. broad, with a long steel hilt which protects the arm up to the elbow. This sword weighs 18 lbs.; the handle, however, is small for so large a weapon. Tigh Jang was a companion of the 1st Nizam, and died in 1786. The prince has a number of ostriches, which are ridden by men. The birds travel with great speed, but are very difficult to manage. There is another palace without the city walls called the *Jahan Numa*, also built by the Shamsu'l umara, which ought to be visited. It stands in a suburb of the same name containing 142 sq. m. You pass to it from the 'Aliabad gate. A causeway, built amongst rice fields impassable from deep mud, leads to this suburb, and you enter a very long bazar, consisting of neatly built houses forming 2 long but narrow ellipses. These houses seem to be rented at particular times to the attendants of great personages coming to visit the city at particular seasons. They extend about $\frac{1}{3}$ of a m. After passing through them you enter a court where there are hundreds of soldiers, horse and foot. At the end of this is a carpeted staircase which leads into a reception room. The palace is full of curiosities of all kinds. There is a round ball with 4 speaking trumpets, and on speaking into 1 of them in English, Persian, Arabic, or any other language the answer comes from below in that language. There is also a figure of a grenadier, who keeps swallowing miniature fish after fish. After passing through rooms filled with curiosities of this kind and ascending a number of steps, you suddenly come out into a beautiful garden, which seems to be over these rooms, but in point of fact is a terrace raised as high as the top of the house, into which the staircase from the house conducts you. Here too are a number of birds, particularly an immense collection of cranes of all kinds, among which the adjutant reigns supreme, making them all fly in terror from his gigantic beak. There are also a number of fine leopards and other beasts. The *Jahan Numa* faces due N. Another morning may be passed in visiting the Mir 'Alam Tank, which is 2 m. from the S. wall of the city. The lake is 7 m. round, and 2 m.

long from S.W. to N.E., and $1\frac{1}{4}$ m. broad. The E. bank is walled with masonry, the top of which is b. in a waving pattern which looks well. The embankment is formed of a series of 21 very large granite arches, laid on their sides, with the semicircular projection opposed to the body of the water. These arches are not ranged in a straight line, but form in the aggregate the segment of a circle. 19 of them are 150 ft., the other two 250 ft. in the span, with 150 ft. of wall at the end, making in all 3,350 ft. The lake was finished by Munirul mulk at a cost of £80,000.

At 300 yds. from the bank is a b. where you can take refreshments, if you bring any with you. Sir Salar Jang keeps a steam yacht here of about 50 tons burden, with a French captain, who is also a great sportsman, and has killed some 30 tigers on foot. He has also shot several alligators in the lake, the largest 12 ft. long, and when one makes its appearance he does not rest until he has killed it. As the yacht draws too much water to come close to the bank, you have to go on board in a boat, which is rowed by women, who are very athletic and pull with great force. At the extreme W. end of the lake, which has picturesque coves and windings, is a wooded hill about 80 ft. high, surmounted by a building which is the Dargah, or shrine of Mahbub 'Ali. At the N. end the lake receives the Musi r., and when full it is there 45 ft. deep, and the water at the S. end rises and spreads 2 m. further than usual. In order to see the Dargah you have to disembark and walk about a $\frac{1}{4}$ m. away from the lake, and then ascend a number of steps and come back to it. You will then have to take off your shoes after passing a door which has the ensign of the fish over it, and also this quatrain—

"Thou art mindful of the indigent,
Thy heart on thoughts of mercy is intent,
What though earth's treasures all belong to thee,
Thou wilt ne'er of the poor forgetful be."

The Dargah is a beautiful structure and well placed, looking down on the waters of the lake that ripple at the foot of the cliff on which it stands. It is small but symmetrical, and was once covered with blue tiles. On the rt. hand over a sort of doorway is a Persian distich—

"Whose face has humbly pressed this hallowed ground
Higher than heaven has exaltation found."

On the l. are 4 other Persian verses. Were the place kept in good order, and were the people a little more courteous to strangers, no more agreeable visit could be paid in the environs of Haidarabad than to this shrine.

There is another noble lake, the Husain Sagar, which lies on the l. hand of the road going to Sikandarabad, and which the traveller will see spread out before him as he goes to that cantonment. The suburbs altogether cover a much greater area than the city within the walls. 1st, the Jahan Numa suburb, which is to the S.W., covers 1.42 m.; 2nd, the Kerwan suburb, on the N.W., covers 1.48 m.; 3rd, the Chadar Ghat, Residency, Bigam Bazar, and Afzal Ganj on the N., covers 3.07 m.; 4th, the Nain Palla, due N., covers .73 m.; 5th, the Y'akubpura, 1.7 m.; 6th, Sarur Nagar, .69 m.; total, 18.46 m.; add the city, 2.18:—grand total 10.61 m. At the S.E. corner of the city is the Mir Jumla Tank by which the rd. to Sarur Nagar passes. That suburb is 3 m. 7 f. from the tank. It is here that the hunting with leopards takes place. English gentlemen are often invited to witness the sport, and will probably have to ride on a pad elephant, which will give them every opportunity of displaying their gymnastic powers, as it is only by holding on with one's whole force that it is possible to retain one's seat. The leopards are generally taken in pairs, and are hood-winked until a black buck passes near enough to be chased. The run is generally for about 400 yds., when the leopard overtakes its victim, strikes it to the ground, and sucks its blood from its neck. Sometimes, however, the buck escapes to a wood enclosed with a high wall, which if it jumps it generally gets off.

The next visit should be to *Sikandarabad*, which is N. by E. of Haidarabad, and $5\frac{1}{2}$ m. from the Residency. Thence the traveller can visit Trimalgadi, which is 3 m. N.N.E. of Sikandarabad, and Bolaram, which is 2 m. due N. of Trimalgadi.

On the way to Sikandarabad the traveller will pass a vast house called Pestanji Kothi, built by a Parsi who many years ago farmed the revenues of Birar and erected this grand villa, in which the chief engineer under the Nizam's Government now lives. S.E. of this house and 1 m. from the Residency is Raja Khandu Swami's house, standing in handsome grounds. He is the Hindu agent for the Nizam's Government, and is the son of the famous Chandu Lal. Near this is Mrs. Palmer's house, where there is a picture of General Palmer, who married a Bigam of Oudh. St. George's Church, to which most of the English inhabitants of Chadar Ghat go, is 200 yds. N. of Pestanji Kothi. In the churchyard of this are a number of tombs. Among them is that of the famous William Palmer, who was called "King Palmer," and was the head of the great house, who banked for the Nizam. He was the son of General Palmer and the Bigam. His tablet is eulogistic of his 3rd wife, on whose fortune he was supported after the failure of the house.

The Parade Ground at Sikandarabad is of immense extent, and would admit of a large brigade manœuvring upon it. On the N. side are many officers' houses, the rly. stat., which is handsomely b. of granite, and the church, which is large enough to hold a European regiment. On the S. side of the Parade Ground is the cemetery, in which a vast number of officers are buried. The Assembly Rooms and Theatre are conveniently situated on the Parade Ground. At Trimalgadi is an entrenched camp, the best of its kind in India. It is so placed that the Europeans in Bolaram and Sikandarabad could at once retire into it. It is surrounded by a ditch 7 ft. deep, and a rampart rising from the inner side of the ditch to the height of 7 ft., with a stone revetment. There are several bastions on which guns are mounted, and also a bomb proof. The camp is well supplied with water from wells, and has a Commissariat Store and Bakery b. of granite. The Store can hold bread and provisions for the force located here for 12 months. The average out-turn of bread at the Bakery is 3,000 lbs. a day. There are now 50 bakers employed, and if that number were increased the daily out-turn might be raised to 6,000 lbs. Bread is kneaded by coloured men, and the work is so hard that they cannot labour at it more than 5 hours a day. The women carry the sacks, and get 6 rs. a month, while the men get from 6 to 9. The wheat used is grown in Haidarabad, and is darker than that grown at Puna, but far superior in gluten. The military prison here is popularly called Windsor Castle, from its high tower and castellated look. It is an imposing building in the form of a cross, each arm of the cross having 2 storeys, but the upper storey is only $\frac{2}{3}$ the length of the lower. It has 52 cells, 8 in each of the lower storeys, and 5 in each of the upper. There is a Governor, who is a sub-conductor, and there are 6 warders. Most of the prisoners are in for selling their clothes, the punishment for which is 6 months' imprisonment. The hard labour is lifting and carrying a 16-lb. shot, and an hour at this is severe work. The men also make mats and cord, etc. Lord Napier has recorded his opinion that "the prison appears to be an admirable one, and creditable in every respect to those who constructed it, and to the existing management." This prison stands due W. of the S.W. bastion of the entrenchment, but there has been some talk of bringing it inside, though as it stands it would be a valuable outwork. There is a printing press in the 2nd storey of the tower, at which all the camp orders are printed. The clock is in the storey above. The visitor will ascend to the roof of the tower by an almost perpendicular staircase. The tower, which is 80 ft. high, stands due N. of the city, and the Char Minar, 10 m. off, can be dimly seen from the top. The entrenchment is commanded by several hills about 200 ft. high, such as the Gun Rock, which is $\frac{3}{4}$ m. to the N.W., Chota Maul 'Ali, which is $1\frac{1}{4}$ m. to the N.N.E. of the jail, and Bara Maul 'Ali, which is 5 m. to the E., and probably out of range, and there is also a rocky ridge about $1\frac{1}{4}$ m. to the S.E. The cemetery at Trimalgadi is S. of the jail, and a little N. of it are the houses of the Catholic Bishop and Priest. The barracks of a European Regiment of Infantry are E. of the entrenchment, those of the Artillery are to the N. The hospital for the European Infantry, a handsome white building, is due S. of the S.E. bastion of the entrenchment. Between the W. and S. wings of the jail is a well of excellent water, which is 60 ft. deep, and even in the dry weather holds

14 ft. of water. The water is beautifully clear, and the messes do not filter it. The Resident's country house at Bolaram stands in very pretty grounds, which swarm with mungooses, who go about in packs of 6 or 7, and are encouraged as destroyers of snakes, which abound here. Close to the Resident's villa is a fine house belonging to Sir Salar Jang, with beautiful grounds. Panthers come to these grounds constantly, and also to a hill $\frac{1}{2}$ of a m. from the Resident's villa, on which is an obelisk to the memory of Major Adolphus Elizabeth Byam, who got the name of Elizabeth from the Duchess of York, his godmother. He was military secretary to the Resident, and died at the Cape of Good Hope, November 12, 1839. A favourite diversion at the cantonments of Sikandarabad and Trimalgadi is the riding after panthers and bears with spears. The panthers are numerous even at the present time, as proved by many occurrences, such as that of a large panther in broad daylight springing into a room in which 6 officers were assembled.

Another visit which the traveller must make, and which will take him a whole morning or evening, is to the tomb of M. Raymond at Sarur Nagar. The traveller will drive or ride across the Oliphant Bridge, and proceed $3\frac{1}{2}$ m. to the S.E. of the city and into the suburb of Sarur Nagar. He will thus have arrived in the hunting grounds of H. H. the Nizam. The country here is *accidenté*, rough ground with woods enclosed in stone walls about 7 ft. high. Innumerable herds of black buck and spotted deer wander over this tract undisturbed, for no one may fire at them without permission, and all they have to dread is an occasional chase from the hunting leopard, and now and then a few shots from some distinguished sportsman. There is a carriage road passing through these grounds; but it is full of deep ruts and is otherwise difficult. Driving or riding along this road the traveller will soon perceive *Raymond's Tomb*, which stands on very high ground. At the foot of this eminence is a rest-house for Indians, open in front. From this you ascend the high ground and arrive at a spacious *chabutarah*, or building on a terrace. This structure is 100 ft. long from N. to S., 50 ft. broad, and 15 ft. high. In the centre is an obelisk of grey stone, 27 ft. high, with simply the letters J. R. on each side. Further S., at the end of the *chabutarah*, is an edifice like a Grecian temple, about 20 ft. high and 15 ft. sq., where travellers may repose and enjoy the air, which is here deliciously cool even in August. No date is recorded; but the gallant soldier in whose honour this fine structure has been erected died on the 25th March, 1775. There is a Muhammadan tomb close by. The repose and quiet of the place, the shade and fresh air, and the continual passage of herds of deer render it a charming rendezvous for a picnic.

Golkonda is due W. by N. of the city, and $4\frac{1}{2}$ m. as the crow flies from the Char Minar, but by the rd. about 7 m. After leaving the cantonment as one approaches Golkonda the country assumes the character of the stony belt. The plain is heaped with enormous masses of black granite, so fantastically piled together that the task seems done by art. One huge rock is thrown upon another until a gigantic minaret is raised, the crowning mass being often the largest of all, and apparently requiring but a touch to roll headlong down, and topple all its supporters with it. The natives account for this chaos after their usual strange fashion; they say "the great Architect of the Universe having finished the earthly part of creation threw the fragments and refuse materials on this spot." In this strange scene the deserted hill crowned by the gloomy fort in which no sign of life is ever visible, and the long array of towering mausoleums at the foot of the hill, seem like a city of the dead. On the l. as you approach is the fort, crowning a conical hill about 250 ft. high, and once deemed impregnable, every advantage being taken, according to the Indian style of fortification, of the masses of granite heaped together by the hand of Nature. The fort has several defences, one within another, and the works are in good repair. No person is ever permitted to visit the interior of the fort unless the Nizam himself should go there, and, as that seldom or never happens, the persons who can describe the details of the fortification are few or none. The tombs are all of a uniform character. Each mausoleum stands in the centre of a vast quadrangular terrace, approached on all sides by flights of steps, which enter upon a rich arcade

formed of an equal number of pointed arches on each front, and finished with a lofty balustrade and a minaret at each angle. The body of the building, also quadrangular, rises about 30 ft. above the upper terrace of this arcade, and is also surrounded by a balustrade flanked with minarets of smaller dimensions than those below. From the centre of this part of the buildings springs the *Kubbah* or dome, which by its magnitude adds greatly to the grandeur of the edifice. The principal material employed is grey granite, ornamented in some parts with stucco, and in others with porcelain tiles. The colours of the tiles retain their brilliancy to the present day, and the extracts from the Kuran, in white characters on a polished blue ground, have all the richness of enamel. Originally a mosque was attached to each tomb, which formerly possessed the privileges of a sanctuary, and its revenues, besides supporting a number of priests, afforded a daily meal to the neighbouring poor. The surrounding gardens were beautifully planted, and adorned with fountains, and with their falling waters formed a delicious retreat during any season in the year. This description, however, had begun to grow obsolete from the time when Aurangzib besieged the fort. The fire of his guns had to some extent damaged the tombs, and sacrilegious hands had torn away many of the ornamental tiles which adorned the roofs. From year to year the edifices decayed, and there was none to repair them, until at the time of Sir Salar Jang's advent to power the complete ruin of every mausoleum seemed imminent. The court-yards were overgrown with jungle and long grass which harboured innumerable serpents. Desolation and silence reigned around, and, except the echoes which the footstep of some rare traveller awakened, not a sound was heard. To Sir Salar alone it is due that these magnificent monuments of the grandeur of departed kings have been rescued from destruction. Their present state will now be recorded, but it is desirable in the first instance to relate how it was that Golkonda, from having been the capital of a great kingdom, and an over-populous city, descended to the comparatively deserted state in which Aurangzib found it. It appears, then, that Golkonda was a mere village until 1512 A.D., when Sultan Kuli Kutb Shah, Governor of Telingana for Mahmud Shah Bahmani, declared his independence, and assumed the title of King of Golkonda, from the village where he b. his capital, calling it Muhammadnagar, after Muhammad Shah Bahmani, but the original name of Golkonda prevailed. The city was repeatedly devastated by pestilence, owing to the scanty supply of water, and Muhammad Kuli Kutb Shah in 1589 determined to remove the seat of his government to a new site. He therefore, determined to build a new city on the banks of the Musi, and called it Bhagnagar from his favourite mistress Bhagmati, but after her death he named it Haidarabad, the city of Haidar, though for many years it retained its former appellation. It was he who b. the Char Minar, the Makkah Mosque, the *Langar* almshouse, and other fine edifices. Soon after establishing himself in his new metropolis, Muhammad Kuli commenced an aggressive war with the neighbouring Hindu Rajas. He took the strong fortress of Gandikota, and one of his detachments sacked the city of Kadapa. Some of his troops penetrated even to the frontiers of Bengal, and he defeated the Raja of Orissa, and subjugated the greatest part of the N. Sarkars. In 1603 an ambassador from Shah 'Abbas, King of Persia, arrived at Haidarabad with a ruby-studded crown and other magnificent presents. The Palace of Dilkusha was allotted to the envoy, and he remained there 6 years, receiving from Muhammad Kuli £2000 yearly for his expenses. When he returned to Persia, Haji Karam 'Ali, an officer of the Court of Haidarabad, accompanied him, bearing return presents, amongst which was some gold cloth, manufactured at Paitan, which it took 5 years to complete. In 1611 Muhammad Kuli died after a most prosperous reign of 34 years. After the transfer of the seat of government to Haidarabad the population of Golkonda rapidly declined, but it still numbered some thousands until the fort was taken by Aurangzib. After that only the garrison was left, and at the present time this does not exceed a company or two. The tombs are about $\frac{1}{4}$ m. to the N. of the outer wall of the fort, which surrounds the foot of the hill. Sir Salar has surrounded the principal of them with a handsome stone facing to

the platform on which they stand, and an enclosing wall. Outside of this is the tomb of the 6th King, Sultan Abdu'lla Kutb Shah. This is one of the largest. The rectangular base, outside measurement, is 94 ft. sq. The supporting arches are 4 ft. 6 in. thick. The room within the building is 56 ft. 3 in. sq. In the centre is a tomb of black stone, consisting of 5 decreasing plinths, all inscribed with *ayats* of the Kuran, or prayers, except one which bears the name of the king and the date. It states that 'Abdu'llah, son of Sultan Muhammad Kutb Shah, was born on the 26th of Shawwal 1023, ascended the throne on the 14th of Jumada'lauwwal 1034, and died on the 4th of Muharram 1083. This tomb and the others are all placed with the head to the N., and the face to the W. The height of the vaulted chamber inside is 50 ft. There is a flight of 24 very high steps, each more than 2 ft. high, to the first gallery, or platform, from which rises a wall 30 ft. high, and above that rises the dome about 35 ft. more. At each corner of the platform is a highly ornamented Saracenic or Egyptian minar, and the borders of the tops of each stage of the building are splendidly carved. There is a 2nd platform, which is reached by 31 steps. Leaving the 1st tomb and going N. you pass a small old mosque on the l., and further on a much-decayed tomb, the upper half of the dome of which was entirely gone in 1872, but the building has since been repaired. This is the tomb of the daughter of Abu'l Hasan, surnamed Thanah Shah, who died at Aurangabad, a prisoner to Aurangzib, and was buried there. The inscription on the black stone in the centre inside has become illegible, and fragments have been broken off it, it is said, by Europeans. The pieces of another black stone lie about. You now come to an incline and enter an enclosure surrounded by a wall 15 ft. high. On entering you have close on your l. a domed tomb 50 ft. high, inside which there are 2 tombs of black stone. On that on the l. is the date 1035, and at the end to the l. as you enter is Fatima Sultan, a daughter of Sultan Muhammad Amin. On the rt. hand is a tomb inscribed Muhammad son of Kutbu'd din Ahmad, 18th Sh'aban 1021. He was the son of the person buried in the ruined tomb at the entrance. Leaving this tomb and going to the rt. you pass fine borders of fruit trees, and come on the rt. hand to a handsome white mausoleum, which has been repaired. It is that of Haiat Bakhsh Bigam. The basement is 50 feet sq., and to the top of the dome the edifice is about 100 ft. high. Inside there is a tomb of black stone, formed of a series of 7 decreasing plinths. She was the daughter of Sultan Muhammad Kuli Kutb Shah, 4th King, wife of Sultan Muhammad, 5th King, and mother of Sultan 'Abdu'llah, whose tomb is outside the enclosure. The 3 lowest plinths have nothing written on them, the top 4 are inscribed all round. This tomb is surrounded by a wooden rail, and the dome has been restored by order of Sir Salar Jang, but there is no colouring. On the S. side of the 6th step is "Haiat Bakhsh Bigam, died on the night of Tuesday the 28th of Sh'aban 1027." To the N.W. is a very handsome mosque, richly ornamented, and particularly with 2 representations of maces about 17 ft. high. There are 2 minars about 60 ft. high in the Egyptian style. More to the W., but quite close, are 2 small tombs, one of *Bhim Mati*, the other of *Tara Mati*, beautiful Hindu wives or mistresses of Sultan Ibrahim, 3rd king, with the date 1073. The 3rd large white mausoleum is W. of the above, and is the tomb of Sultan Muhammad, the 5th king. The black stone inside has a series of 7 decreasing plinths, the 3 lowest being plain. On the E., S. and W. sides of the 4th plinth is inscribed a chapter of the Kuran to the end. On the N. side is the prayer called the Nad 'Ali. On the 5th plinth on the E. side is the portion of the Kuran called Surah i Ikhlas, and that called Surah i Falak. On the W. side is the *Surah i Kadr*, and on the S. side the *Surah i Kafirin*. On the 6th plinth, on all four sides, is the *Aminullah Rasul*. On the 7th plinth, on all four sides, is the *Ayat i Kuksi*. On the surface at top is the *Kalimah* and the *Ayat i Bhahadat*. The date on the top is 1036. On the S. side of the 6th step is written "Muhammad Kutb Shah, son of Mirza Muhammad Amin, son of Ibrahim Kutb Shah, died on the 13th of Jumada'lauwwal 1035. He was born in Rajab 1001, and began to reign on the 17th of Zi'lka'dah 1020. He reigned 14 years and 6 months, and his age was 34 years and 10 months." You now

leave the enclosure, and find on your rt. a long Karwansarai, and pass through a ground covered with a number of stone pillars, about 7 ft. high, set up by the Nizam Nasiru'd daulah for training grapes. To the l. of these is the mausoleum of Sultan Muhammad Kuli Kutb Shah, the 4th king, who b. Haidarabad. Between this tomb and the fort wall is a very handsome stone 'Idgah. The pediment is about 80 ft. sq., the E. side being 79 ft., and the S. side 80 ft. 8 inches. The black stone inside has 6 plinths, the 2 lowest are plain, the 3rd has the Shadullah to the end, and on the N. side the Nad Ali. The 4th plinth has the 3 *Surahs* of *Kadr*, *Kafir* and *Ikhlas*, and the *Manzain*. The 5th plinth has the *Ayat i Amin i Rasul* to the end. The 6th has the *Ayat i Kursi*. On the surface at the top is the *Kalimah* and *Ayat i Shahadat*, with the date 1024. On the 5th plinth is "Muhammad Kuli Kutb Shah, son of Ibrahim Kutb Shah, died on the 17th of Zi K'adah, 1020 A.H. His age was 49, and he reigned 31 years."

This magnificent tomb, which is one of the largest, and certainly the finest of all, is 180 ft. high. The dome is 60 ft. high inside the lower storey, and to the 1st gallery is 56 ft. It is impossible to get up to the 2nd gallery, but that is certainly not less than 25 ft. The dome outside above the gallery is conjecturally 30 ft., and the ornament above it 10 ft. Total, 181. Outside each portal are 2 granite pillars, and 2 pilasters, made of single blocks 22 ft. high, and the porticoes are roofed with slabs of single stones. Between the stonework outside there was a facing of coloured tiles, and of these enough remains to show how beautiful the building must originally have been. Going S. you come to a black tomb in the open air, with an upright slab at the head covered with an inscription. This is the tomb of Neknam Khan, the Mujauwir of Sultan Ibrahim's tomb, to whom that monarch gave a grant of land, the purport of which is here recorded. Close to it is the mausoleum of Ibrahim Shah, 3rd king, brother of Jamshid, and son of Kutb Shah. The black stone inside has 7 plinths, the lowest 3 have no inscription. The next has the *Allahuma salli* to the end. The 5th plinth has the *Surah i Kadr* and the *Ayat i Salam*. The 6th plinth has the Nad 'Ali on the E. side, and between it is written the portion of the Kuran which begins "Kal Muhammad Nabi." On the N. side of the 6th plinth is written in Arabic (a beautiful specimen of writing) "Sultan Ibrahim Kutb Shah died on the 5th of Rab'iu s-sani, 1010 A.H." This Gumbaz has had at the base 4 corner pillars with small arches like flying buttresses. One remains, the others have been broken off, and the local people impute the mischief to Europeans. On the S. side a number of large nails driven into the wall show where depredators got up to tear off the tiles. S. of Ibrahim's tomb, and next to it, is the small *gumbaz* of Sultan Muhammad Amin, the youngest son of Ibrahim. The black tomb inside has 6 plinths, the 2 lowest quite plain. On the 3rd is the prayer which begins "*Allahuma salli ala'l Mustafa*" to the end. On the 4th plinth there are some Arabic verses. On the 5th is the Nad 'Ali, and on the 6th the *Ayat i Kursi*, and on the top surface the *Shahadat*, and the date of his death, the 15th of Sh'aban, 1004 A.H. Jamshid, the 2nd king and parricide, has no other memorial than a chabutarah or terrace on the S.W. of Ibrahim's tomb at the end of a row of 4 small buildings. N. of Ibrahim's *gumbaz* is a slim *gumbaz* to Kulsum Bigam. Kulsum means plump, thus Fatima the daughter of the Prophet was called Ummu Kulsum, "Mother of plumpness." This lady was the daughter of Kutb Shah. The *gumbaz* has 3 storeys, and inside are 3 tombs without inscription. That to the W. is understood to be the tomb of Kulsum herself, that to the E. is the tomb of her husband, name unknown, and the little tomb in the middle is that of her daughter. Close to Kulsum's *gumbaz* is that of the 1st king, Kutb Shah, founder of the dynasty. The black tomb inside has 7 plinths. The top plinth has no inscription, but the figure of a tomb at the top. The 3 lowest are plain, but the 4th has the verse which begins *Salli ala'l Mustafa*; the 5th plinth has the *Ayat i Kursi*, and the *Sa'daka Allah*. This tomb is distinguished by having the inscription written in Arabic by a Persian calligrapher, whereas the other inscriptions are, with the exception of the extracts from the Kuran, written in Persian by Indian penmen. It records that the martyred King Sultan Kuli, whose title was Kutb Shah, died on the 22nd of Jumada's sani, 950 A.H. The base of this structure is 38 ft. 5 in. sq.

ROUTE 34.

HAIDARABAD TO BIKAR, 75 M. 3 F. BY PALKI.

Names of Stations.	Distances.		REMARKS.
	M. F.	M. F.	
From the Arsenal at Sikandarabad to			
Rasulpur.....	1 2		
Bigampet	0 6		
× n. to Balanagaram	1 3		
1. KUKATLAPALLI	2 7	6 2	Low hills and jungle.
Nizampet	1 6		
Miyanpurah	2 4		Water abundant.
× n. to Ramachandrapuram	5 2		
2. PATTANCHERU	2 4	12 0	
3. × 3 n. to Khandi	12 2	12 2	b. low hills and jungle.
× 2 n. to Potareddipalli	2 0		Khandi contains 1000 inh.
× 5 n. to Nandi Khandi	6 5		
4. SADASHIVPET	2 4	11 1	b. t. s. Large population.
× n. to Yamplali and Nayakpalli	3 6		
5. × 3 n. to Munupalli	3 3	7 1	
× 2 n. to Peddachilmaira	5 2		
× n. to Partanapalli	1 2		
× n. to Jarralapalli	1 6		
6. × 4 n. to SANGAM	4 3	12 5	b.
× 3 n. to Sitapur	3 4		
× 1 n. to Dumsalpur	1 3		
× 1 n. to Ramatirtham	3 0		
7. GUNJATTI	0 4	8 3	
× 1 n. to Shamsallapur	2 6		
Gumia	2 7		
× 3 n. to Allod, where Bidar begins.....	2 0		
8. Bidar	1 0	8 5	b. t. s.
Total...		78 3	

The road passes through the plain of Golkonda, leaving the fort and the tombs to the l. It is usual to encounter whole droves of bullocks carrying grain and firewood to Haidarabad, and these delay the traveller, and in the dry season raise clouds of dust. Small tombs and mosques line the road for 2 m. after passing Golkonda. After that the road passes under a viaduct near the rly. stat. of Lingampalli. *Pattancheru* is a beautiful station, thoroughly clean and comfortable, with splendid trees about it, and on the other side of the road is a garden belonging to Sir Salar Jang. S. of the t. b. $\frac{1}{2}$ a m. is a fine tank. Before the railway was made the b. here was always full, but now no one comes except for shooting. The b. is provided with a large zinc bath. After leaving *Pattancheru* a large *gumbaz* is passed on the rt., and then the town of Kaulampet, where there is a ruined fort. At *Sangam* the t. b. has, since March, 1875, been handed over to the engineer of the District. This is a famous spot for shooting. The snipes in November, and the hares at all times, are innumerable. In the hills near are plenty of bears, and in those to the E. there are tigers, and near the Pakhol hills wild elephants. Here Mr. Gay, an engineer apprentice, was killed by a tiger. The land about *Sangam* is very valuable, and pays a very large revenue easily. At *Sadashivapet* the t. b. is $\frac{1}{4}$ m. from the town, which has been a strong place. Some bastions and archways remain, and are very solidly built. The town is long and straggling. After this the water-courses all the way to Bidar are very troublesome, and during the rains can hardly be crossed. The cultivation is very considerable, and large herds of cattle are seen. At *Gumia* there is a large *gumbaz*, and before reaching it a picturesque ruin about 40 ft. high, with 3 trees growing at the top, is passed on the rt. *Bidar* is visible about 4 m. off, and the appearance of the city is very striking. On the rt. among trees appear 2 large domes, a lofty minaret, and 3 sq. buildings, and to the l., at a greater distance, are many lofty buildings with domes. The road passes along the wall of the fort for about a mile before it reaches the t. b., which is at the N.W. end of the fort and outside it. The lands on the rt. hand side of the road from *Sangam*

to Ramatirtham are among those assigned to Shamsu'l umara for the support of the Nizam's troops. The total territory so assigned brings in 26 lakhs—£260,000—a year. The Bidar District begins at Ramatirtham.

Bidar.—The W. gate of the city is called the Shah Ganj Darwazah. It is about 300 yds. from the t. b., and is 32 ft. high. There are in all 8 gates, viz., the Shah Ganj, the Fath, the Kawi, the Thal Ghat, the Patal Nazari, which is closed, the Halim, which is closed, the Khandah, and another, and there are 72 bastions, of which 27 are in the citadel called the *Ark*, and 35 in the city wall, which extends 6 m. There is 1 tank, the Nani Kundah, 11 *bighahs* and 10 *biswas* in extent. It is on the extreme N. of the fort. The wall of the citadel is $2\frac{1}{2}$ m. in circumference, and has 2 gates, the *Sharzah* or Lion Gate, where 2 effigies of lions are seen high on the wall. The 2nd gate is an inner one to the Lion one, and is called the Gumbaz, to the l. of which, and close by, is the old palace called the Rang Mahall, where the Sadr Talukdar, or Commissioner of Division, lives and holds his office. The traveller will commence his circuit by ascending the Shah Ganj gate by 2 flights of 16 and 10 steps. This brings him to the top of the rampart, the inner glacis of which within the walls is 50 ft. broad, and might be made a beautiful walk. The wall is topped with *kungurahs*, or battlements. These battlements are in many places 8 ft. high, and at every 600 ft. or so is a platform for a cannon. There were in the city wall 6010 *kungurahs*, but many have fallen, and plain walls have been substituted for them. From the Shah Ganj going W. the first large bastion that you arrive at is called the Fath Burj, or Victoria Bastion. Here is a monster gun made of the blue metal called *bangri*. It is 20 ft. 4 in. long. The muzzle is 1 ft. 10 in. diameter, and the orifice 9 in. There is an inscription in gold letters, beautifully written, of 7 distichs, which says that the gun was made in the reign of Kasim Barid Shah in the month of Muharram, 988. There are other two couplets lower down on the gun, and still lower is a line which says the ball weighed 5 *mans* and $\frac{1}{2}$ of a *sir*, and the powder 1 *man* and 10 *sirs*, and if you wish it to carry further add 10 more *sirs*. From the Fath Burj to the Shah Ganj Gate is 1350 ft. The said gate's arch is 24 ft. high and 12 ft. 8 in. broad, and from the top of the arch to the top of the bastion is 7 ft. At the top the gate is 19 ft. broad. The battlements here are $3\frac{1}{4}$ ft. high and $2\frac{1}{2}$ ft. broad. The ditch is here 16 ft. deep, and the wall, except near the gateway, is $16\frac{1}{2}$ ft. high; but close to the gateway on the rt. of it it is 23 ft. 4 in. high. Further to the W. there are 3 more guns with inscriptions, 2 having the date 1135 A.H. The name of Muhammad Kasim appears upon them. There is a small gun lying near them, with a rod projecting from it. In another bastion there is a gun $4\frac{1}{2}$ yds. long, with a bore of 9 in. diameter. In another bastion there is a gun $11\frac{1}{2}$ ft. long, the muzzle having a diameter of 2 ft. 3 in. with a bore of 14 in., with an inscription which says the gun's name is Fath Lashkar, and that it was made in the time of Mirza Shah Mahmud, whose title was Barid Shah, with the date 988. After visiting the bastions in this direction the next thing will be to enter the citadel by the Sharzah or Lion and Gumbaz gates, and then go to the Rang Mahall. This building faces N.N.E. The lowest story is now filled up with débris, and you ascend a number of steps into what is now the ground floor. You then pass through a courtyard, in which is a basin of water 10 ft. by 7 ft., in front of a room with an open façade, 28 ft. long and 16 ft. broad, called the Shah Nishin. This most curious room has evidently been the *māndapam* of a Hindu temple. It has 4 pillars and 8 pilasters quite black with age, and most curiously carved in the Hindu fashion at the top. These carvings were covered with gilding, which was white-washed some years ago. Over the arch in the centre is written a Persian couplet expressive of adulation. From this you pass into a square dark room about 8 ft. each way, which opens into a room 15 ft. by 14 ft., where the idol of Devi was placed. There is a small basin of water in the centre, where the idol was washed, and there is a window at each side of it to give light for the ceremony of the *Pradakshina*. Over these windows are now written Persian sentences formed of mother-of-pearl and gold. This was the palace of Raja Pratap Rudra, before the Muhammadans conquered the city. The S. window looks on the wall of the fort,

the nearest part of which is 80 ft. from it. There is also a fine view of the Madrasah, which is due S., and which will be spoken of presently. It is $\frac{1}{4}$ of a m. from the Rang Mahall. The couplets over the other windows extol the beauty of the place, and commence with the Divine Name. Above these rooms, in the next storey, is a large and comfortable sitting-room, whence it is customary to see the monkeys fed. They are a colony of black-faced baboons, who, when sitting, are about 2 ft. 9 in. high. They have an allowance settled on them, which probably dates from the time of the old Rajas, of 60 rs. a month, which is expended in feeding them with bread made of the *Jawari*, or *Holcus Sorghum*. As nobody is allowed to kill them they have multiplied to an incredible number, and pillage all the country round of grain and fruit. These detestable creatures are not only mischievous but dangerous, as has been shown on many occasions, and particularly on one, when Nizam 'Ali was most severely bitten at a great feast he was giving at Bidar. In the midst of the entertainment, although there were thousands of people about, and the city was illuminated, a large baboon came and bit the Nizam so severely that he lay ill for weeks. If the traveller proposes to sleep during the heat of the day in the room which has just been mentioned, he will have to set guards to prevent the monkeys attacking him. However, the spectacle of seeing them fed is a very curious one. Great panniers of bread are brought on to the terrace, and a call of "Ao, ao" ("Come, come") is raised, whereupon swarms of huge baboons come bounding along the roofs of the houses, and descending perpendicular walls with incredible agility. It is said that one of these apes ascended the minaret of the Madrasah, but in descending he lost his hold, and had to spring down 100 ft. on to the roof of a house, through which he passed, but was transixed with a piece of wood and killed. From the Rang Mahall the traveller will proceed to a strong outwork on the W., where about 150 prisoners are kept in chains. On the wall of this building is written "Malik Shah Marzan built this, 1087 A.H." In going there one will pass along through many rooms of the Rang Mahall, which is a very large building and most solidly built but to a great extent deserted. Remark the huge stone rings to which the stone doors have been attached. Remark also the doors of the city gates, which are immensely strong and plated and bossed with iron. At $\frac{1}{4}$ of a m. from the Rang Mahall is another huge gun. In going to it you pass over lines of ruined buildings, and among them a magazine, in which it is said Mir Mughul 'Ali Khan was confined by his brother, Nizam 'Ali. There is some powder here which has become caked together from age. There are also 532 cannon shot, some of stone and some of iron. The bastion where the big gun lies is called the Sat Gaz, or "seven yards," as if the gun were of that length, but it is only 15 ft. long. It is rifled and made of *bangri* metal. It has fallen on its side, and points N.E. by E. It is really beautiful, the dark blue metal being polished like a mirror, and covered with inscriptions in letters of gold. Proceed now S., and pass the *Takht Mahall* Palace, a vast pile of ruins in which are plenty of serpents. It looks upon the Thal Ghat, or "Low Country," for here the Bala Ghat, or "Upper Country," upon which the city of Bidar is built, advances like a ridge to within $\frac{1}{2}$ a m. of the Thal Ghat. Proceed now S.W. to the *Gagan Palace*, which was the King's private residence, and to reach it pass through the Tir Kash, which is a building 5 storeys high, where the king gave public audience. The Sadr Talukdar holds his office at the Gagan, and here too the Bidar work is done. Iron vases or cups have flowers or figures cut upon them, and pieces of silver, corresponding in size and shape, are hammered into the grooves. A plate of this work is sold for 8 or 10 rs. The specimens are of course very heavy. A little to the N. of the *Gagan Palace* is a mosque of the Bahmani time, with several inscriptions by Aurangzib. There is here, too, a *Sarai*, b. by Nizam 'Ali when he marched against the Marathas in 1203 A.H. The visitor will observe in the Gagan Palace, in the N. wall of the citadel, and in the Shah Ganj gate a number of stones taken from Hindu temples, with carvings of deities upon them. The Hindus still continue to offer incense to the figures on these stones. The visitor will now leave the Citadel and drive S. to the *Madrasah*. On the way he will pass on the l. the house in which the Nizam Nasiru'd daulah was born, and

in which Sikandar Jah lived 3. years. Part of it fell down about 50 years ago. The Madrasah has been a magnificent building. It is 200 ft. long from E. to W., and 170 ft. broad from N. to S. The body of the building is 55 ft. high, and with 3 ft. of parapet 58 ft. There were 3 minarets, but 100 years ago one in which a quantity of powder was stored was struck by lightning. An explosion took place, which threw down the minaret and destroyed that part of the building. The other minaret is 190 ft. high, and covered with encaustic tiles, some blue and others green and yellow. About half the screen remains, splendidly inscribed with letters 4½ ft. high, of a blue colour. To the top of the screen is 80 ft., and to the 1st circle round the minar 100 ft. The ruins of the fallen side are 20 ft. high. Until a few years ago these buildings were full of jungle, where panthers used to lodge. Sir Salar Jang has had them cleared out. From this proceed to the Chan Barah, a round black tower 40 ft. high and several centuries old. It is impossible to mount to the top, owing to the filthy state of the building. The next visit will be to the tomb of Shah Abu'l Faiz Min'ullah, a saint, and grandson of Bandah Newaz of Kalbargah. The road lies along the W. and S. sides of the city and through the Mangalpet suburb, coming out by what is called the Habshi's guard, a position which has been fortified. Close to this is a grove of trees, where are the tombs of the saint and his family. It is *de rigueur* to take off your shoes, and, as the ground is very rough, this does not add to one's comfort. The Dargah has its S. gate handsomely adorned with blue encaustic tiles, and the door itself and the stones to which it is hung and on which it closes are painted green. Within are 3 tombs with silk coverlids. A number of coins are let into the stones near the door and into the pavement near it. The dome is 80 ft. high, and S. of it are 2 tombs, which are said to have been brought from Aurangabad, and are those of 2 sons of Nizam 'Ali, called Mir Hisamu'd din and Mir Riza' Ali. Beyond is a *chabutarah*, or terrace, in the centre of which are 2 stone *Kishtis* or receptacles, which are at certain times filled with food for the poor. There are several other tombs here, and to the W. that of Nizam 'Ali's wife, 'Ashura Bigam, with curious lattice work. Of the Bahmani kings the 5 first, the 7th and the 8th died at Kalbargah and were buried there. The 6th, Sultan Shamsu'd din Shah, died a prisoner in the fort of Bidar; but his tomb is not extant, unless it be one of the 12 6m. E.N.E. of the city. The 10 last kings from Sultan Ahmad Shah died at Bidar, and were buried there. Their tombs are about 6 m. from the city, and will of course be visited by the traveller. But before doing so it will be advisable to see the tomb of 'Ali Barid, which is 2 m. W. of the f. b. In order to reach the terrace on which this mausoleum stands, you pass through a richly ornamented building, called the Nakkar Khanah, or music gallery. In the lower rooms a guard of soldiers was kept, and in the upper music used to play when a personage of rank approached. The mausoleum itself, which is about 150 yds. beyond the Nakkar Khanah, is a perfect gem of art, and is so symmetrical that it does not appear to be as lofty as it really is. The square on which the dome rests is 76 ft. high, and the dome itself 64 ft., but there is an ornament on the top about 10 ft. high, so that the total height is 150 ft. The whole is of granite, admirably put together. Each side of the sq. base is perforated with an arch 32 ft. high, and ornamented inside with beautiful inscriptions in gold and blue, and with devices of flowers. The lower part of the dome also is elegantly carved. In short, it would seem that everything that art and money could do has been done for this mausoleum. Close by are 60 low tombs which are said to be those of 'Ali's wives, and a strange legend adds that they were all killed by his order in a single night. No doubt 'Ali Barid met with terrible reverses. Having offended Shah Tahir, the envoy of Burhan Shah, who was sent to congratulate him on his accession, he incurred the resentment of that monarch, and in the war which followed he was divested of almost all his territories. The grandson of Burhan Shah, Murtaza Nizam Shah, besieged Bidar, and would have taken it but for assistance rendered to it by 'Ali 'Adil Shah of Bijapur. It is possible that during these reverses 'Ali Barid may have ordered his wives to be slain, but more probably these tombs are those of children and relatives who died during 'Ali Barid's long reign of 45 years, or subsequently.

Further to the W. are many other tombs and domed buildings, but none comparable with the mausoleum of 'Ali Barid. Moreover, the other buildings and the spaces between are overgrown with long grass in which many serpents harbour, and the visitor will probably think the view of a number of edifices, of which he has already seen the best specimen, would be hardly worth the risk of being bitten. The tombs of the Bahmani kings stand to the E. N. E. of the city, and are 12 in number. The largest is that of Ahmad Shah Bahmani, who moved his capital from Kalbargah to Bidar in 836 A. H.=1432 A.D. It was he who b. the wall of Bidar city. His mausoleum resembles those at Golkonda and Kalbargah. It has a sq. basement measuring 50 ft. each side. The wall is 12 ft. thick, and in it are 4 arches 27 ft. high. This basement is surmounted by a dome, the top of which is 120 ft. from the ground. The dome and walls were inlaid from top to bottom with stones of various colours on a gold ground and mixed with mother-of-pearl; in the lapse of time these ornaments have been impaired, and the inscriptions have unfortunately faded. Ahmad's son, 'Alau'd din, rests in a mausoleum of similar dimensions, but far less richly ornamented. In it there is a slab with an inscription in Persian and Marathi, in which occurs the name Kadir Khan, and the date 840 A.H.=1437 A.D. This is probably the record of a grant of land to Kadir for taking care of the mausoleum. Besides the tombs of the kings, there is at this place the mausoleum of Shah Khalilullah, surnamed But Shikan, "Iconoclast," the spiritual guide and teacher of Ahmad Shah Bahmani. The rd. to this mausoleum lies through the Pain Ghat gate of the city on its N.E. side, and a short way outside this gate you descend a rocky and difficult path about 100 ft. to the low country. You then ride through fields of rich black soil, and a flourishing village, to the distance of about 1 m., which brings you to the tomb. The building stands on a terrace 8 ft. high, and consists of an hexagonal building of stone 60 ft. high, the inner diagonal of which is 66 ft. This base is surmounted by a dome 45 ft. high. There are 3 galleries outside the dome, the lowest being 15 ft. broad, the 2nd very narrow, and the 3rd quite open. The building is very symmetrical, but there is no inscription except a verse from the Kuran. In the same enclosure are 2 other mausoleums, of which one is superbly ornamented.

ROUTE 35;

BIDAR TO AURANGABAD. 232 M. 4½ F., BY PALKI OR ON HORSEBACK.

Names of Stations.	Distance.		REMARKS.	Names of Stations.	Distance.		REMARKS.
	M. F.	M. F.			M. F.	M. F.	
1. × 1 n. to Numbad	3 1			6. × n. to Sakni	1 1		
× 2 n. to Kolar	2 0			× 3 n. to HALI	2 2	13 4	
× n. to Hampur	4 4	9 5	Small village.	× Tair r. to Andergati ..	0 6		
× several n. and a				× 3 n. to Gadawadi	2 0		
1 n. to pass to				Sopalli	2 0		
2. HALI	4 7	4 7	b.	× n. to Surur	2 0		
Taigad	1 6			× Land n. and 3 n. to			
× 2 n. to Vinadabad	1 0			Katagaum	3 0		
× 2 n. to Challa	1 6			× 2 n. to			
× 2 n. to Ambarsingh	2 1			7. RAJURAH	2 4	12 2	
× 2 n. to Kankilwadi	1 7			× 3 n. to Katagaum	2 4		
Kurasa	1 3			× Maniar r. and some n.			
× Indiyastota n. to				to Sumtana	3 0		
3. DOANDEKRA	2 2	12 1	Small village.	Kandalli	2 4		
× n. to Ghodga r. r. b. ..	3 0			× hill and 2 n. to			
Ditto, l. b.	0 1			8. SAWARGAUM	4 0	12 0	
Alsor	0 1			Jaggaum	1 4		
× 2 n. to Chaudhar	2 5			× Kallati n. to Poti	1 3		
× n. to Dori	2 7			Khandallah	2 0		
4. Dair r. to NIGGAPETTA ..	1 4	8 2	b.	Kandgaum	1 7		
× Chaudhar r. to Tugeri ..	3 6			× Masul r.	0 1		
Sawarggaum	1 4			Wadi	1 3		
× 4 n. to Mangh	1 0			× hill to			
Bahmani	1 0			9. GANGA KHATH	3 1	11 3	t. s.
× 3 n. to Malawadi	2 0			Godavari r. r. b.	0 2½		
5. × 1 n. to	2 6	12 0	b. A town with	Ditto, l. b.	0 1½		
Somnath	1 2		1050 houses.	Chota Khair	0 1		
× Ghat to Usalkawadi ..	2 6			Mulli	2 1		
× Ghat and 3 n. to				× 1 n. to Salsigaum	2 0		
Kallur	2 2			Jaurah	1 5		
Ismailpur	0 4			Dandi	1 6		
Ekruka	1 3			Takelli	2 3		
× r. to Kint	7 0			10. × 3 n. to PANGRI	1 5	12 1	

Names of Stations.	Distance.		REMARKS.	Names of Stations.	Distance.		REMARKS.
	M. F.	M. F.			M. F.	M. F.	
× n. to Bhorwan	3 1			Waigam	5 0		
× Indadi r. twice to Ugralamba	3 5			× n. to Sarwadi	1 5		
× n. to Bahulgaum	1 2			17. × 2 n. and the Gundalka r. to JALNAH cantonment	3 6	13 2	P. O.
11. × 2 n. to MANDAKALLI	2 2	10 2		Kadirabad	0 6		
× 2 n. to Baladi	2 7			× Gundalka r. to			
Saurgaum	1 4			18. Jalnah Fort Gate	0 5	1 3	
× n. to Sauli	1 0			× Gundalka r.	0 4½		
× 3 n. to Utarwadi	2 4			× 3 ravines and 1 n. to Nargawadi	3 6		
12. × n. to MANWAT	2 3	10 2		× 2 ravines to Jalgaum	4 1		
× 3 n. to Karobah	3 0			× ravine to Pandi	1 0		
Karanji	1 4			× n. to Padall	1 3		
× n. to Pippalgaum	2 2			× Dudhna r. to			
× Kujurah r. to Dikarsi	1 5			19. Badnapur Fort	0 4½	11 3	
13. SAILU	3 6	12 1		× n. to Wabaigaum	6 1½		
× 2 n. to Rawalgaum	3 2			Chhota Jalgaum	0 4		
Utgam	1 6			Karrigaum	1 7		
14. × n. to BARA SATONAH	2 2	7 2		× Lohara r.	0 6		
× 2 n. to Chhota Satonah	1 7			Jalgaum Fort	0 1		
× 2 n. to Rehna	2 7			20. KARUMAD	3 5	13 0½	
× Worpar r. to Worpai	3 3			× n. to Kumbaipal	2 7		
15. × n. to PARTUR	3 7	12 0	Town of 1000 houses.	× n. to Chadravi	1 6		
× n. to Muslah	2 0			× 3 n. to Jandah	2 5		
× 2 n. to Jaulah	2 0			21. × n. to Chikaltbanah	1 4½	8 6½	
× n. to Ramjint	3 3			Firstwadi	1 5½		
× n. to Chitragaum and Dudhna, r. b.	2 6			Pasipur, E. gate	2 2		
Ditto, l. b.	0 1			" W. gate	0 3½		
Pippalgaum	1 3			22. AURANGABAD, E. gate	0 2		
× Gundalka r. to				" W. gate	2 0½	6 5½	
16. KARLAH	2 1	13 6	Small village.	Total	232 4½		
Wadi	2 7						

Jalnah, in lat. $19^{\circ} 50'$, long. 76° , is a considerable town and cantonment in the province of Aurangabad on the banks of a river, the name of which is written in the Route-book as Condulca, and in the same book in another place Goondulca, in the Gazette of S. India as Kundoolah, and in another place as Goondla, and again as Goondlacama, but which is perhaps correctly spelled Gundalka. A regiment of the Haidarabad contingent is cantoned there, numbering about 907 men, with a few cavalry soldiers, about 13 in number, to act as orderlies. It will be here convenient to give a distribution of the contingent for the years 1870-71, which has been pretty closely adhered to for subsequent years:—

	Belaram nr. Haidarabad.	Aurangabad Brigade, head-qrs.	Ellichpur.	Jalga.	Wingdi.	Memnabad.	Lingsagar.	Total.
Artillery	130	128	130	—	128	—	—	516
Cavalry	493	565	80	13	496	578	85	2,310
Infantry	916	900	883	907	890	—	893	5,389
Total strength.....	1,539	1,593	1,093	920	1,514	578	978	8,215

The cantonment is situated on a gently sloping declivity, with a small range of hills in front, from 1 to 2 m. distant, forming a sort of amphitheatre. The cavalry lines are on the S.E.; those of the horse and foot artillery on the N. W., and the infantry in the centre. The town of Kadirabad lies within 2 m. of the cantonment in a S. W. direction. The small r. Gundalka forms the boundary of the cantonment. The cantonment is capable of affording accommodation to 1 troop of European horse artillery, 1 regiment of native cavalry, and 3 regiments of native infantry. The cavalry lines are situated on a gentle declivity, the barracks or places for saddlery and arms, 8 in number, facing to the N.; the store-rooms, gran-godown, and standard yards are on the opposite side, lying parallel with the horse lines. In the centre is the hospital. At the 'extreme end of the barracks, within about 100 yds., are the lines for sick horses, facing N. and S. The officers' houses are in the rear of the barracks, and the Sipahis' huts 200 yds. to the southward of these. The climate of Jalnah is admirably adapted for horticulture. Figs, grapes, peaches, and strawberries are grown in perfection, as also all kinds of European vegetables.

Aurangabad.—This city was first called Khirki, and was founded by Malik Ambar in 1610. He was the head of the Abyssinian faction in the Ahmadnagar State, and died in 1625. The t. b. at this place is close to the church and post-office, and is comfortable. The town lies to the E., the cantonment and the road to Daulatabad, Rozah, and Elura to the W. The first place to visit is the *New Cemetery*, which is surrounded by a high wall, is shaded by fine trees and is well kept. In the centre of this cemetery, and most conspicuous of all the tombs, is a lofty obelisk on a square base, reached by 9 steps, and which is the tomb of Lieut.-Colonel Richard Seger, Commandant of the Aurangabad Division, who died April 20th, 1833. Observe also the tombs of Capt.-Commandant Charles Parker, commanding the 6th Regiment of Infantry of the Haidarabad contingent, who was killed at Aurangabad on September 22nd, 1853, in a battle between the Haidarabad contingent and a strong body of rebel Arabs, and of Ensign Horace Bosworth, of the 26th Bombay Native Infantry, who was killed in the same battle. There is a beautiful white marble cross, with a wreath of white flowers round it exquisitely carved, to an infant son of Lieut.-Col. T. T. Turton, and a handsome white marble tomb, made at Genoa, to the memory of Major James Johnston. The Old Cemetery is in quite the opposite direction on the outskirts of the city, 300 yards S. of the mausoleum of Rabi'a Durrani, which edifice may be visited at the same time. It is 1 m. N. E. of the city. The great door at the gateway is plated with brass, and along the edge of the door is written, "This door of the noble mausoleum was made in 1089 A.H., when Atau'llah was chief architect, by Haibat Rai." Near the inscription is an infinitesimally small figure, which is said to be a bird, indistinctly carved, and there is a similar carving on the door of the mausoleum itself; and it is a common joke amongst Indians, when any man asserts that he has been to Rabi'a's mausoleum, to ask if he saw the bird there, and if he answers in the negative to dispute his having seen the mausoleum at all. From the great door to the beginning of the reservoir of water which occupies the centre of the grounds is 107 ft., and thence to the end of the reservoir nearest the tomb is 494 ft., and thence to the wall of the mausoleum is 27 ft., so that the mausoleum is 628 ft. from the gate, and the greater part of this distance is occupied by a long narrow basin of water, in which originally fountains used to play. On either side of the water is a walk and ornamental wall, and on the rt. side as you go to the mausoleum, about 60 yards back from the wall, is a handsome building, now used for picnics. On reaching the wall of the mausoleum you pass a 2nd but much smaller door, only 6 ft. high, plated with brass, where the 2nd bird is pointed out. The carving of the flowers on this door is curious, and that of the dragons particularly so, and extremely like Japanese. The bird is on the edge of the door close to the upper central knob. 21 steps must now be ascended to reach the platform on which the mausoleum stands, which is 184 ft. from E. to W., and 183 feet from N. to S. Descend now 22 steps to the tomb, stepping with care on the white marble pavement before reaching them, as it is very slippery. The tomb is enclosed in an octagonal screen of white marble lattice-work exquisitely carved. The raised marble platform of the tomb is 12 ft. 2 in. from N. to S. and 8 ft. from E. to W. The place for the slab is 6 ft. 4 in. long from N. to S., and 2 ft. 3 in. broad from E. to W., and is empty and nothing but earth appears. This is what Muslims consider very proper, as showing humility. The marble enclosure has 23 panels besides the open door, and the total circumference of this most beautiful and costly work is 71 ft. There is no inscription anywhere. In the gallery above the tomb is a marble door exquisitely carved. The mausoleum itself measures 78 ft. from E. to W., and 77 ft. from N. to S., and has 4 corner rooms, the doors of which are, or have been, plated with brass. To the W. of the mausoleum is a mosque of brick faced with *chunam* of a dazzling whiteness. The pavement is very remarkable, for it is entirely covered with tracings of *sujdahs*, or prayer-carpet. There are 7 rows of such tracings in the body of the mosque, and 56 tracings in each row, which gives room for 392 worshippers. There are 6 rows of 7 scalloped arches, each supporting the roof. The *mimbar*, or pulpit, is of marble, and is reached by 3 steps. The Government of the Nizam has gone to great

expense in restoring this beautiful mausoleum, which it is the fashion to decry as a poor copy of the Taj. An impartial observer will fail to detect any signs of attempting to copy the Taj, or indeed any resemblance between the two buildings. The only fault of this otherwise beautiful building is the want of sufficient height in the entrance archway. Observe the curious roof of the gateway of the mausoleum. There are 10 rows of what seem to be ostrich eggs, and above each egg 10 other eggs gradually diminishing in size. It is understood that the Rabi'a buried here was the wife or daughter of Aurangzib, but there is no inscription to testify to the fact.

The next visit will be to the *Pan Chakki* or water-mill, which is the prettiest and best-kept shrine in the S. of India. It is situated on the rt. of the rd. as you approach the bridge to cross to Bigampura from the cantonment, and on the very edge of the Kham, the r. of Aurangabad. Turning to the rt. you enter by the side of a brimming tank of clear water, which overflows into a lower one, and that again into a 3rd, which is only a narrow conduit. The tank is of masonry, and is 117 ft. 10 in. long from N. to S., and 80 ft. broad from E. to W. The E. and S. sides of the place are open. On the W. are buildings and a wall 20 ft. high. The N. side is partly shut in by a building. The S. side, which is open, displays a beautiful garden. The tank is full of fish, from 1 ft. to 3 ft. long, of a species called Khol. In 1877 the shrine and the grounds were under the management of Fazil Shah Nakshbandi Alkadiri, and to him the exquisite cleanliness and beautiful arrangement of the place was due. The saint entombed here is named His Holiness Baba Shah Musafir. He was a Chishti, and was originally from Bukhara, and was the spiritual preceptor of Aurangzib. His successor at present in enjoyment of the place is Hamidu'llah Shah. Among the beautiful trees here is a very fine cypress. Beyond the first tank and the ornamental garden is a 2nd and much larger tank, which is not seen until you enter the garden near the tomb of the saint. This tank is 162 feet from N. to S. and 80 ft. from E. to W., and is entirely supported on arches. Below it is a noble room to which you descend by 15 steep steps, the first of which is 5 ft. high. The chamber below is on the brink of the r., the water of which in the rainy season inundates the pavement, but might easily be kept out by a low wall. There are 2 rows of 15 pillars each, each pillar being 16 ft. round. The weight of the great body of water resting on them is enormous, and altogether it is a stupendous work. The 4th of Rajab is the 'Urs or festival of the saint, and the walls and gateway are so contrived as to admit of myriads of lamps being placed within them, which sparkle in the water like diamonds. As you pass along by the 2nd tank you have a fine mosque on your rt. hand, the roof of which is supported by 4 rows of massive pillars. In 2 of the rows the pillars are of teak, and in 2 of masonry; the pulpit has 3 steps. At the S.W. corner of this mosque is a little garden, in which is the tomb of the saint. It is of beautiful light-coloured marble, but very diminutive, being only 5 ft. long and 2 ft. broad. It has 2 ridges. At the end of this garden, on the wall of the sanctuary, are 2 inscriptions, the 1st of which gives the date of the saint's death as 1126 A.H. There is also a chronogram in the inscription which gives the date 802 A.H., which may refer to an earlier member of the family. After leaving the *Pan Chakki*, drive $\frac{1}{4}$ of a m. N. to the *Makkah Gate* of the city, and the *Makkah Bridge*, which are probably some cents. old. The gateway from the top of the parapet is 42 ft. high to the rd. passing over the bridge, but it goes down below that 11 ft. to the surface of the r. in the rains. Besides this, the tower has a sort of dome 12 ft. high. Its total height therefore is 65 ft. Inside the tower there is a black mosque b. of stone of that colour, by Malik Ambār. There are 3 plain arches. The total length is 53 ft. 4 in. and the depth is 25 ft. 3 in. The pulpit has 3 steps. In the centre is a niche with the Divine Name, and "Victory is near." Above that is the *Kalimah* and some verses of the Kuran written in difficult Tughra. Close by is a recess with a bell-shaped ornament. This is perhaps the oldest mosque in the city. From this the visitor will drive to the Government offices, which are 2 m. to the S.E. of the cantonment, and in or near the *Ark* or citadel b. by Aurangzib. This spot a few years ago was entirely covered with

cactus and jungle, the haunt of hyenas and other wild animals. It was, however, the site of gentlemen's houses in the reign of Aurangzib, when Aurangabad was the capital of the Dakhan. Sir Salar Jang, who has restored so many cities in the Nizam's dominions, ordered the site to be cleared, and when this was done numerous reservoirs, fountains, and other works of art were discovered. These have been repaired, and the wilderness has literally been changed into a blooming garden. On the high ground looking down upon the Revenue Settlement Officer's rooms and on those of the Municipality a fine hall is being erected, and in front of it is a beautiful tank of most pellucid water. Behind the hall is a well-arranged garden, and in rear of that again is the Barahdari or Government House, with a fine fountain in front throwing up a volume of water 12 ft. high. The façade of the Barahdari is ornamented with tracery in white chunam in a peculiar manner resembling lace. Only 1 archway of Aurangzib's citadel remains, and the walls which enclosed it, but here 53 great princes, like the Maharajahs of Jaipur and Jodhpur, attended the court of the emperor with thousands of armed retainers, and Aurangabad was then the Dihli of the South. As soon as Aurangzib was dead all the princes at once departed, and Aurangabad sank at once into comparative insignificance. Returning from this visit the traveller will stop at the Jam'i Masjid, which is on the rt. of the rd., amid a grove of some of the finest trees in India. One immense *Ficus indica* stands close on the rd. and shades some 300 ft. of it. The mosque is low, and so are the minarets. But the façade is rendered striking by an ornamental band of carving 2 ft. broad along the whole front. The pulpit has 3 steps. Over the central niche are the *Kalimah* and inscriptions in Tughra writing, as in Malik Ambar's Mosque. The building is 168 ft. long and 84 ft. deep. There are 4 rows of pillars, and arches with 10 pillars in each row, 5 on either side of the central arch. This mosque is wonderfully well kept, and there is, what is not seen anywhere else, a net covering the entire façade, so that no birds or other unclean creatures can enter. Malik Ambar b. half this mosque, and Aurangzib the other half.

The Caves.—The next visit will be to the caves of Aurangabad. The visitor will drive to the N. outskirts of the city near Rabi'a Durrani's mausoleum. He will then alight and ride or walk to the ft. of the hills, which are here about 500 ft. high. In these hills 4 or 5 m. off are the water-works whence the tanks of the *Pan Chakki* are supplied with water. The ground at the base of the hill is very rough, and intersected with deep ravines. The visitor will climb over a very rough and slippery rock about 250 ft. up to the caves. He will then see the mausoleum of Rabi'a $1\frac{1}{2}$ m. to the S.E. 15 steps lead to the entrance of Cave No. 1. On the l. of the door is Buddha in the teaching attitude, that is, holding the little finger of the left hand between the thumb and fore-finger of the right. He is seated with the feet upturned on a lotus, which is supported by Nagas, known by the cobras' heads which canopy their heads. A Gandharva is flying nearly over Buddha's head. On the l. is the Padma Pani, "lotus-holder," an attendant. The other attendant on the r. is Vajara Pani, "lightning-holder," who in many cases is represented holding the thunderbolt in his hands, though it is not distinguishable here. Above the side door on the l. are 3 Buddhas, 2 of which are cross-legged with the soles of their feet upturned, and the 3rd is in the teaching attitude with the usual attendants. On the r. of the main entrance are Buddha and 3 figures similar to those on the l. On entering the shrine a large figure of Buddha sits facing you, with the soles of his feet upturned, and the back of his right hand resting on the palm of his left. A round circle in *rilievo* on the wall represents a halo round his head. Padma and Vajara are one on either side as usual, with Gandharvas over their heads. On Buddha's l., in niches, are 2 sitting figures of Buddha in the teaching attitude, and 1 standing in that of a mendicant. In the upper niche, on the r., is a Buddha seated in the teaching attitude, with the usual attendants. The large central Buddha is of black stone, and is 6 ft. high from the place where he sits to the top of his head. He measures across the shoulders 3 ft. 10 in. The face is much mutilated. The shrine is 9 ft. broad, 8 ft. deep, and 8 ft. 10 in. high. A passage 9 ft. 4 in. broad goes all round the

sanctuary. This cave has been white-washed, and the white patch on the side of the hill can be seen from a mile off in the plain below. By the inner wall it is 40 ft. 2 in. in length, taking the 3 sides, and has been all cut out of the solid rock. There is an ornament like prongs round the archway. Number 2 Cave is a Chaitya Hall with a semicircular roof with stone ribs, like the Vishwa Karma Cave at Elura, and a triforium. It consists of a nave 15 ft. long on either side, besides a bow or curve 16 ft. 10 in. long. The 15 ft. on the r. as you enter have fallen, and are quite ruined; the aisles are choked with earth, and the floor is a heap of ruins. Near the end of the nave, however, there is a dahgopa with a Tee very perfect. The ribs of the roof are 13 ft. 2 in. above the cupola of the dahgopa. Number 3 Cave is a Vihara 68 ft. 9 in. deep from N. to S. The outer verandah is ruined. The inside room or hall next to it is 10 ft. broad and 42 ft. long from N. to W. The centre hall is portioned off as usual with 12 pillars, with plain bases, shafts, and brackets. They are 9 ft. high, and 10 ft. round the lower part. The vestibule is 8 ft. 8 in. deep, and the sanctuary 12 ft. 7 in. The central Buddha is 9 ft. 6 in. high. On either side are 7 worshipping figures. The struts in the pillars in the vestibule are figures of human beings. Number 4 Cave is a small Vihara. Buddha is seated on a *Singhasan* in the teaching attitude, with the soles of his feet upturned. All round on the wall are smaller Buddhas. The sanctuary is 8 ft. 4 in. sq. The Vajara Pani has a dahgopa in his crest, and 2 figures of Buddha. The Nagas, known by their snake-heads, stand at the sides of the 2 attendants. A good example of the dahgopa crest is in the corridor to your r. as you enter, after passing the first division, about the middle in point of height. Number 5 Cave is higher up in the face of the cliff, and is not worth the trouble of a visit. These caves are, as is generally the case, in the centre of a semi-circular ridge, as at Elura. When the traveller descends he will find at the distance of 300 yds. from the foot of the hill a beautiful *top* or cluster of trees, of which the principal are 2 immense specimens of the Indian fig-tree. This is a good spot to take refreshment. There are many other places of interest to be seen in the hills around, but the demands of Daulatabad, Rozah, Elura, and Ajanta will be so excessive on the traveller's time that unless he can stop for months he must confine himself to these last-mentioned places. The journey to Daulatabad from Aurangabad can be done in 1 hour in a *tonga* with 2 good horses. 3 m. from Aurangabad is the village of Mitmitha, where a change of horses is often placed. About 3 m. W. of Daulatabad is a village called Fathabad, where there is a dargah or shrine, with 2 old tombs about 38 ft. high, with bulbous domes. There is a pretty garden here, washed by a stream of water. The walls of the tombs have a curious ornament, a chain with a bell attached to it, delineated on them. But it will not be worth while for the traveller to go out of his course to see this place.

ROUTE 36.

AURUNGABAD TO DAULATABAD, 8 M., ROZAH 7 M. TOTAL, 15 M.

It will be necessary to arrange beforehand for a relay of horses at Daulatabad to get on to Rozah the same day. At Daulatabad a ghat or steep hill is passed, which tries the horses very much, and sometimes it is necessary to have *Kulis*, or labourers, to assist them. Permission must be obtained from the Nizam's government, represented by the Sadr Talukdar of Aurangabad, to see the fort of Daulatabad. The first thing on arriving at Daulatabad is to see the *Kil'ahdar* or commandant of the fort, and ask permission to taste some of the famous grapes of this place, which are the finest in India. There are 4 kinds: 1st, the *Hubshi*, a black grape, the most delicious of all; 2nd, the *Sahibi*, which is a white grape, and the best of that colour; 3rd, the *Fakhri*; and 4th, the *A'bi*, which the villagers call *Bakri*. There is a convenient shelter from the heat of the sun afforded by some fine trees at the spot where the traveller will stop and wait for the appearance of the deputy-commandant before he begins to explore the Fort. To reach this spot he will turn off from the main road from Aurangabad to the W. at $1\frac{1}{2}$ m. before he reaches Daulatabad. The Fort is built on a huge isolated conical

rock of granite about 500 ft. high, with a perpendicular scarp of from 80 to 120 ft. all round. The rock above this scarp is of a sugar-loaf shape with a sharp point, and the whole may be likened to a compressed bee-hive. At the base is a straggling patch of houses and huts, which is all that remains of the native town. It is defended by a loop-holed wall with bastions, which on the E. side joins the scarp of the fort. At the bottom of the scarp is a ditch, before reaching which 4 lines of wall, including the outside wall of the town, must be passed. The fosse can be crossed only in one place by a stone causeway, so narrow that only 2 men can obtain a footing on it abreast, and commanded on the side near the fort by a battlemented outwork. The only means of ascending the rock is through a narrow passage hewn in the solid stone, and leading to a large vault in the interior. From this a ramp or gallery, gradually sloping upwards, and also excavated in the solid rock, winds round in the interior. The first part of the ascent is easy; towards the end it is difficult. The height of the passage averages from 10 to 12 ft. with an equal breadth, but it is so dark that torches are requisite. The entrance is on the E. side. First of all you pass 2 gates armed with very formidable spikes of iron to resist elephants, and at the 3rd gate 3 Hindu pillars and 3 pilasters are found on either side. Facing this 3rd gate is a bastion 56 ft. high. It has a balcony or gallery with Hindu curved supports, and is called the *Nakkar Khanah*, or music gallery. It has a small window, on which are carved in *alto rilievo* 2 leopards like those in the royal shield of England. The 4th archway faces to the E., and beyond it on the r. is an old Hindu temple, with a broken lamp tower 13 ft. high. The face of this temple has 2 pillars and 2 pilasters or engaged pillars 4 ft. 6 in. high. On the l. of the road is a small *chattri* or pavilion, which is the Dargah of the Pir-i-Kadus. Advancing 40 ft. one comes to a flight of 18 steps, which lead to a masonry tank 23 ft. deep, 150 ft. 10 in. long from E. to W., and 100 ft. broad from N. to S. Passing along the side of this tank, and turning to the l., you come to the entrance into a mosque which has been an old Hindu temple, and ascend 22 steps to enter it. Prayers are said here in *Ramazan*, and at the *Bakri* Id, otherwise it is not used, and is in a very dirty and dilapidated state. On the W. side are 4 rows of pillars and 2 of pilasters 16 ft. high. The centre of the mosque is octagonal. There are 11 pillars in each row on either side of the centre. The whole side is 233 ft. long and 44 ft. 9 in. broad. There are 160 pillars in all. The diameter of the dome in the centre where they pray is 23 ft. 6 in. On the rt. of the centre, looking W., in a niche, is a stone 3 ft. 7 in. long and 2 ft. 6 in. high, covered with a Sanskrit inscription; but the stone has been white-washed, and it is very difficult to read the words now, and the more so as the stone is placed half topsy-turvy. It weighs about a $\frac{1}{4}$ of a ton, and in 1877 there was talk of sending it to Bombay to be deciphered by the Brahmans. Going out of the temple to the N. you come to a minaret 120 ft. high, said to have been erected by the Muhammadans in commemoration of their first capture of the place. No one will venture to ascend this minaret, as there are nests of hornets there which the Indians call *Sarek*, and which are so formidable that the most courageous men will not venture to encounter them. There have been 3 balconies or galleries to this minaret; the two upper have fallen, and nothing remains of them but some black timbers, which look hideous. The lowest gallery is conjecturally 60 ft. from the ground, and, though broken, is still very handsome. Some persons assert that the minaret is 180 ft. high, but it can only be measured by observation with proper instruments, which were not at hand when it was examined. The minar has a conical top, and is said to have been erected in *Malik Ambar's* time. There is said to be an inscription on it, but it is impossible to ascertain the truth of this statement until the hornets have been driven away. The 5th gateway leads to a platform, which goes partly round the hill, and has on the rt. a building called the *Chini Mahall*, in which *Thanah Shah*, last king of *Golkonda*, was imprisoned for 13 years. His cenotaph is at *Golkonda*, but his real tomb at *Rozah*. Ascend here 24 steps to a bastion, on which is a cannon indented in two places by cannon balls. It is 21 ft.

10 in. long, and the muzzle has a diameter of 8 in. There are 4 inscriptions on it : at top is "Victory is from God" and "Good news for the Faithful, victory is near." Near the breech is written, "This is the gun of Muhyiu'd din Muhammad Bahadur, the King, Subduer of Infidels, 'Alamgir Aurangzib." In the next division is, "Made by Muhammad Hassan the Arab." In the next division is, "This gun is called Kil'ah Shikan, leveller of forts." There is a stone near this with an Arabic inscription. The really difficult and in all times impregnable part of the fortress is now entered upon. By descending 20 steps and ascending 7 and crossing a narrow stone, the ditch that surrounds the citadel is now crossed. It is filled with water covered with green scum, the mud of which has not been removed for centuries, and is probably 10 ft. deep. The breadth of this ditch varies from 30 to 50 ft., and except at the one place where the crossing is made there is a scarp of 50 ft. high and upwards. Ascend now 16 more steps in the platform beyond the ditch and enter a door, on the l. of which is a tall bastion ascended by steps, and crowned by a long gun without inscription. Then enter a passage cut out of the solid rock and observe two different strata, the lower of limestone, the upper a sort of tufa. The passage here is 73 ft. long and 28 ft. 9 in. broad. Descend some steps into a passage with a sculptured architrave over the gateway, and enter another passage in the solid rock with a passage bored above it to give it light. This passage is 30 ft. long and 34 ft. 6 in. broad. It is supported by 4 pillars, each 13 ft. round. Ascend now 4 steps to a vestibule 20 ft. sq., with 4 pillars. Pass then through a very long passage or tunnel, which cannot be measured without numerous torches, as it is pitch dark. Ascend 27 steps cut out of the solid rock. Here the traveller may sit down with a rocky scarp below him of from 80 to 100 ft. deep. From this ascend 29 steps to a platform, and look out over a garden with immense nests of hornets hanging from the branches of the trees. Ascend now 43 more steps and come to an opening covered over with an iron shutter 20 ft. long and 1 in. thick, made in ribs. Part of this shutter is gone, but in case of siege it was heated red hot, so that if assailants could have penetrated so far they would have encountered a fiery roof quite unapproachable. Ascend now 29 steps to a gateway, and 21 more to the shrine of the Fakir Sukh Sultan. A crenellated wall here surmounts the scarp which rises from the ditch. Ascend 131 steps to a pavilion, from which there is a fine view. The hill here has diminished so much that it is not above 200 ft. in diameter. You sit in a wide verandah with a precipice of from 100 to 200 ft. in front, and a view to Aurangabad on the S.E. and to Rozah on the N. On a level with this, but on the N. side, is a descent to a vast tank, the water of which is very clear and palatable. Ascend now 100 more steps to the citadel, which is 160 ft. by 120 ft. At the N.E. corner is a one-gun battery, 60 ft. by 30 ft. The gun is 19 ft. 6 in. long with a bore of 7 in. Now ascend 79 steps and go down 58, and ascend 5 to a bastion with a gun. Thence ascend 24 more steps to another bastion with a large gun, on which in Sanskrit letters is written *Shri Durga*, and also a Persian inscription. It should be said that in several parts of the ramp are small trap doors, with flights of steps communicating with the outer ditch. Tavernier says that the gun on the highest platform was raised to its place under the directions of a European artilleryman in the service of the Great Moghul, who had been repeatedly refused leave to return to his native land, but was at last promised it, on some occasion when the Emperor was passing near, if he could mount the gun on this spot: Stimulated by the promise, he at last succeeded. The outer wall of the fort is 5000 yds. in circumference, and is 15 ft. thick at the base, and 48 ft. high. The best authorities (see Ritter, vol. vi., p. 537) pronounce Daulatabad to be the same as the ancient *Tagara*, and it seems probable that there must have been a vast population in this region at the time the Elura caves were excavated, for these works could have been finished only by multitudes great as those that erected the Pyramids. However, it is now thought that *Tagara* was b. on the plateau of hills to the N. of Daulatabad, and that this isolated hill was merely a defence of the city. Extensive ruins have been discovered on the said plateau, but it is possible that interesting discoveries might be made there if anyone would go with tents and a sufficient staff to examine

the ground. It is doubtful, however, whether water would be obtainable, and certain that no supplies would be got, and that there would be much annoyance from wild beasts. In the year 1293 'Alau 'd din, afterwards emperor of Dihli, took the city of Deogarh, which was the former name of Daulatabad. The citadel still held out. He raised the siege on receiving a ransom, the amount of which may well appear incredible, being 15,000 lbs. of pure gold, 175 lbs. of pearls, 50 lbs. of diamonds, and 25,000 lbs. of silver. In 1338 A.D. Muhammad Shah Tughlak removed the inhabitants of Dihli to Deogarh, the name of which he changed to Daulatabad. It was this emperor who dug the ditch round the rock, and made the fortifications so strong. The people who had been brought from Dihli soon fled back to their homes, and though the tyrant made a second attempt to establish his capital in the Dakhan, he was finally baffled. Still we may suppose that Daulatabad received some accession to the number of its inhab. by these forced migrations, enough at all events to repair the ravages of the Muhammadans under 'Alau 'd din. Under the Nizam the commandants of Daulatabad sometimes played an independent part. In March, 1795, Nizam 'Ali was obliged by the treaty of Kahrah (Kurdla) to cede Daulatabad to the Marathas under Mahdu Rao. From Daulatabad may be seen to the S. E. another isolated hill of about the same height on which are some curious buildings which have never been properly examined. The hill from Daulatabad is called Pippal Ghat, Pippal being the *Ficus religiosa*. It was paved by one of Aurangzib's courtiers, whose name and the date when he performed this good work are recorded on 2 pillars about halfway up the hill. Horses will not pull a carriage up the hill, and bullocks generally lie down, so that the best way is to get the carriage pulled up by labourers, of whom 3 or 4 score will undertake this work for 1½ rs. On reaching the pillars there are fine views of Daulatabad, but afterwards the rd. winds round the hill, and the fort is shut out. Until the ground becomes level again, there is a steep descent of some 100 ft. on the rt. hand, and you have a fine view over the level to the N. After about 2 m. you come to a place called Kaghazpur, "paper-town," where there is a paper manufactory which was much patronized by Nizam 'Ali. After another 2 m. you come to a paved ascent 130 ft. long, and so steep that it is difficult for a horse to mount it. After ascending this you turn to the rt. into a quadrangle, on the rt. hand of which is a mosque, which has this peculiarity, that it has a chamber equally large below it, which serves as a schoolroom in the hot weather for the boys of the neighbourhood. In the rainy season this chamber cannot be used, on account of the water. The quadrangle of the mosque is 121 ft. from E. to W., and 95 ft. 10 in. from N. to S. The façade of the mosque consists of 6 scalloped arches. On the N. side of the mosque is the shrine of Saiyid Zinn 'd 'din, into which you may go without taking off your shoes. On the E. side of the shrine are 14 verses, very well written, which state that the death of the saint took place 771 years ago. N. of the mosque is the tomb of Aurangzib. The screen for the lower part is of white marble 5 ft. high, with wood above. The door is of teak carved in lattice work like the screen. It has 2 leaves, and each leaf is 2 ft. 10 in. broad. The wooden lattice over the marble lattice is 5 ft. high. One leaf of the door got broken about 17 years ago, and cost 106 rs. to repair. The visitor will no doubt be disappointed with Aurangzib's tomb, which is not to be compared with that of his wife Rabi'a Durrani, and not to be mentioned in the same breath with the Taj, but its simplicity is in accordance with the religious feelings of Muhammadans. At some distance from this is the stone wall which encircles Rozah. Rozah itself is a vast cemetery in which are many domed buildings, most of them very much gone to decay. There is one, however, about 35 ft. high, which has been very solidly b., and is now used as a rest-house by the officers at Daulatabad, and it is necessary to get their permission to inhabit it. At about 250 yds. N. of this is a good rd., made by Sir Salar Jang, to descend from the table land of Rozah to the foot of the hill along the face of which are the Elura caves. Elura itself is a neat village embosomed in trees, about 1 m. distant to the W. The rd. descends exactly where the famous temple of Kailas has been excavated, and as that is 96 ft. high, and you descend some way before you come to the top of it, Roza must

be at least 150 ft. above the plain in which the village of Elura stands. All the caves face to the W., as it is the western face of the hill which is excavated. Sir Salar Jang has not only made a rd. down to the foot of the hill where the caves are, and established a *chauki* or "guard" there, but he has also, at the expense of many thousand rupees, cleared out many of the caves which had been filled up, and put them all in better order than they had been in for centuries before. It is to be regretted that after this meritorious work had been done some Parsis came to the place and scrawled their names very conspicuously over some of the best carving. Since then, at the suggestion of the author of this book, Sir Salar has ordered that parties visiting the caves should take a guide with them, who will see that no mischief is done. The caves, with intervals between them, extend altogether about $2\frac{1}{2}$ m. from S. to N., but perhaps it will be best on descending the hill to turn to the l. and begin from the S. *No. 1 Cave* in this direction has no name, and is silted up. You can creep in and find yourself in a space 40 ft. sq., with the plain rock around you. On the 8th of March, 1877, when the author visited this cave, there was a hole scraped in the middle, where a wild boar had been lying. There were also the footprints of a panther quite fresh. There are in fact at the cave 2 very large panthers, a male and a female, who kill the cattle in the neighbourhood, and who have been repeatedly hunted by English officers, but have always charged at once and wounded several men without being injured themselves. They are of the largest size, and have killed and dragged away male buffaloes. This cave and the next 2 or 3 are called the *Dher Wara* group, or "outcast's quarter." *No. 2 Cave*. On the rt. of this is a Buddha teaching, and 2 Boddhisatwas, or incipient Buddhas. To the rt. are 3 Buddhas sitting on *padmasans* or lotus seats. There are *dwarvals* 9 ft. high. At the N. end of the door is a sitting male figure, 6 ft. high, perhaps the patron of the cave. Here, too, is Buddha supported by deer, with a Wheel of the Law between them. The central hall has 12 columns of the Elephanta type, that is, with cushioned capitals, but superior in finish and design. It is 30 ft. 6 in. sq. The *dwarvals* are gigantic. That on the l. is 13 ft. 10 in. high, and that on the rt. 14 ft. 4 in. The corridor is 9 ft. 9 in. broad. The Buddha facing the door is 11 ft. high, and his feet 2 ft. 6 in. long. From the knee to the ground is 4 ft. His breadth at the shoulder is 5 ft. 3 in. The face is 1 ft. 10 in. long, and the whole head from the top of the hair knot is 3 ft. 1 in. From the seat to the top of the head is 8 ft. 4 in. On either side is a *Chauri*-bearer. Observe that one of those figures, that which is on the l., is always more richly dressed. Next are Boddhisatwas or Buddhas standing, and 12 ft. high, and next to them, nearest the door, are 5 rows of devotees. This is a flat-roof *Chaitya*. Chaityas are usually arched. The rock is amygdaloid and volcanic. There is a cell on either side of the shrine. In the corridor at 4 ft. 4 in. from the ground in the centre are galleries filled with sitting Buddhas. On the l. of the entrance, on the inside of the front wall, is a female carrying a lotus, with attendants. She is probably Lakshmi or *Maya*, the mother of Buddha, with the head-dress of a *Jatin*. The insides of the windows, which are 2 ft. broad, are filled with Buddhas and attendants. The caves, all except the first one, are wonderfully clean, as Sir Salar has appointed 3 sweepers to attend to them. He has also caused from 3 to 10 ft. of earth outside the cave, and from 1 to 2 ft. inside, to be removed. Going a little way to the N. you find a well which has not been cleared out, but in case it were the water would probably be found drinkable. After passing a bit of unworked rock 12 ft. broad you come to *No. 3 Cave*, a Vihara with 12 sq. pillars. Half of the front has fallen away. The centre chamber is 25 ft. sq. The shrine is like that of *No. 2*, but is more ruined. There is no gallery, but there are cells in the corridor. To the l. or N. of the entrance is a recess; on the rt. of which is a group of figures. In the centre is Padma Pani, and to his rt. there is what Mr. Burgess calls the *Litany*. There is a figure praying help, 1st from the sword, 2nd from chains, 3rd from shipwreck. On his l. is another figure praying for deliverance, 1st from a lion, 2nd from slavery, 3rd from an elephant, 4th from Kal or death. *No. 4 Cave* has been a flat-roofed *chaitya*, destroyed probably by the action of a stream, which in the rains pours over the top. A chapel on the rt.

of the entrance remains, and 2 of a group of praying figures like those in the Litany first mentioned, but they have a pair of supplicants repeated in front of each. All these caves are on a ledge 54 ft. above the bed of a torrent, to which there is a precipitous descent. The shrine is on the l. with a cell on either side. The *dwarvals* are $7\frac{1}{2}$ ft. high, and are well executed, but injured. On the l. is a Padma Pani, with a deer skin over his shoulder. Ascend now 10 ft. to the Reflection Cave, No. 5, which has 8 pillars of the Elephanta type on either side, of inferior execution. The roof has been plastered and painted. It is 104 ft. 4 in. long, and 60 ft. broad. The side chambers are each 15 ft. wide. The corridor is 8 ft. 6 in. broad, but near the entrance 8 ft. 8 in. There are 20 cells on the side of the corridor. This cave is beautifully clean. A parapet wall has been b. for 15 ft. along a dangerous place outside. No. 6 Cave.—The front of this vast cave has fallen. Mr. Burgess thinks it possibly had a wooden façade, as there is a check in the wall, as if something had been put up in front of it, with holes for fastenings. The depth from the front of the rock to the door of the shrine is 53 ft. The total length of the cave was 97 ft., of which 59 ft. have fallen. Parsis have scribbled their names here with charcoal. On the rt. hand of the vestibule of the shrine is Saraswati, with a peacock on her rt. hand. A Pandit is reading below. In her l. hand is the squamose fruit *Sita Phal*. Overhead on either side are Makars or alligators, with *torans* or garlands issuing from their snouts. At her l. side is a female attendant with a high headdress. In the shrine is Buddha on a Singhasan, with *chauri*-bearers on either side. Buddha has a halo or nimbus, but no Bo Tree. No. 7 Cave is under Cave 6. It is a large unfinished Vihara with 4 pillars, and measures 51 ft. 6 in. from N. to S., and 44 ft. from E. to W. There are 11 cells, but no shrine. No. 8 Cave is a Vihara with a shrine, in which Buddha is seated on a *singhasan*. There are *dwarvals*, and each has a female attendant, with flowers in her hair, and a curious cap set jauntily on one side. Buddha in this cave has *chauri*-bearers, and each has a female attendant. There is a chapel on the N. side with a Buddha and a small figure on a shelf reading. In front of the principal shrine are pillars of the Elephanta type. On the rt. of this is Saraswati with the *Hans*, or swan, well executed. Step out now into the verandah, and observe the handsome façade of Cave 9 above Cave 8. No. 9 Cave faces S. The shrine and verandah are all of which it consists. Buddha occupies the central compartment, and his usual attendants are separated from him on either side by a pilaster. In this cave is written up P. Hyde, 1822. In this cave is an indication of the way in which the attendants of Buddha obtain separate worship. With this cave ends the series called the *Dher Wara*. After an interval of 15 yds. you now come to a single cave, called the Vishwa Karma, called by Europeans the Carpenter's Cave. Remark the echo here. The total length from the front wall to back of apse is 85 ft. 10 in., and the total width is 43 ft. 2 in. The nave is 61 ft. 10 in., by 22 ft. 10 in., supported by 28 octagonal pillars, 14 ft. high, and 2 sq. pillars at the door. The octagonal pillars are 2 ft. 10 in. apart. The width of the aisle is 7 ft. 9 in. The roof has 36 ribs on either side, and $13\frac{1}{2}$ ribs in the apse. Buddha sits on a *singhasan* in the front archway, 16 ft. 10 in. high, with *dwarvals*, *gandharvas*, and a Bo tree on the arch. Behind is a *dahgopa* with a Tee. The height of the roof is 34 ft., and that of the *dahgopa* 26 ft. 10 in. A frieze, or triforium, 4 ft. deep, surrounds the nave between the pillars and ribs of the roof. On the top of the triforium is a line of Naga figures. Then comes a line of Buddhas in compartments, each with 4 attendants, 2 on either side, and below them a narrow band of fat figures like Ganesh. In the side aisles are doors, one to each, one with a Greek fretwork round it. The front court, including the side corridors, is 71 ft. wide by 55 ft. deep. Observe the N. W. corner pilaster with florid drooping-cars pattern, and another corner one with a knotted rope pattern. Ascend stair to N. and observe fine verandah and façade with music gallery inside the triple windows of the cave. Deep holes in the floor have been dug by Jogis. There is a date on a pillar, Shak, 1228=A.D. 1306. The ribs over the gallery are 20 in. deep and 6 broad. There are 3 recesses in the verandah. On the rt. is Padma Pani, on the l. of which is

another Padma Pani. Observe a row of fat figures above on the rt., and the names of a Parsi and his sons from Ahmahnagar.

There is now an interval of 28 yds. and then a single cave called the *Do Tal*, or two storeys. The breadth of the façade at bottom is 102 ft. 7 in. There are now 3 storeys, but the lower one was not discovered until 12 ft. of earth had been removed in 1876: There are 10 pillars and 2 engaged pillars or pilasters at irregular intervals. The interval between the N. pilaster and the 1st pillar is 9 ft. 10 in.; between the 1st and 2nd pillar, 8 ft. 11 in.; between the 2nd and 3rd pillar, 9 ft.; between the 4th and 5th pillar, 9 ft. 2 in.; between the 5th and 6th pillar, 8 ft. 11 in.; between the 6th and 7th pillar, 9 ft.; between the 7th and 8th pillar, 9 ft.; between the 8th and 9th pillar, 9 ft.; between the 9th and 10th pillar, 9 ft.; between the 10th pillar and S. pilaster, 7 ft. 10 in. On the N. side is a closet in which is a Padma Pani in a recess and a figure of Lakshmi with 4 arms; there is also a decapitated Buddha in a recess. The lower storey is not even yet sufficiently excavated, but one can see in it 2 cells, and a shrine with the figure of Lakshmi on the wall between. Ascend 14 steps to the 2nd storey, where there are 3 Lakshmis on the wall. Descend 2 steep steps into the sanctuary, where there is a large Buddha sitting with his rt. hand on his knee, and his l. in his lap. His throne is supported by Ganesh, and a female figure holds a cup up before him. There is another female bestriding a prostrate figure. Buddha is 10 ft. high from his seat to the top of his crown, and 8 ft. broad from knee to knee. Vajrapani, 13½ ft. high, is on the l. of Buddha, and holds a flower-stalk on which is the Vajra, or thunder-bolt, exactly like that represented by the Greeks. The next 3 figures are males, 8 ft. high, with nimbi. The first holds a flower-stalk, with a *Pothi* or book tied with a string (most distinct). The next holds a *Dwaj*, or short pennon. Next is a woman who seems to correspond to a sitting male figure on the other or l. side, holding in his rt. hand a fruit, and in his l. a purse from which coins are dropping. Underneath is a round vessel from which something is falling. These are probably the patron and patroness of the cave. On Buddha's rt. is 1st a Padma Pani and 3 figures, the 1st and 3rd holding flowers, and the 2nd a sword. Above are 8 squat Buddhas with foliage over their heads. On the throne behind Buddha are, 1st, an elephant, 2nd, a *magar*, or alligator, 3rd, a *shardala*, and above is a *magar* with a human figure issuing from his mouth. In the central shrine is a Buddha on a *singhasan* with 2 attendants. S. of this is a sanctuary, the same as the 1st, omitting the figures of the patron and patroness, with some variations in the arrangement. The sanctuary to the S. exhibits 3 male attendants on the rt. of Buddha, and 3 females on his l. Ascend 3 steps, then 6, and then 9 to the 3rd storey, where the pillars have been slightly carved and are 2 ft. 5 in. sq. You now enter a chamber, 104 ft. long, with 8 pillars in a row. The central part consists of 2 cross aisles divided by these 8 sq. pillars. In the centre is a sanctuary with a sitting Buddha and the usual attendants. To his l. is the beginning of a sanctuary, to his rt. a small shrine with a devilish-looking Buddha smoked black; the names T. R. James and H. Priestly, H.M.'s 25th, are written here.

There is now an interval of 45 yds. and you come to a single cave called the *Th Tal*. The central pair of front pillars are among the most elaborately carved of their kind at Elura. The design is a vase with flowers. There are 3 rows of 8 pillars each, and 6 in the vestibule of the shrine, making 30 in all. The height of the cave is 11 ft. 6 in., and of the pillars 10 ft. In a recess to the l. on the back wall is a compartment with Buddha and 8 figures in squares. Padma Pani and Vajra Pani are to the rt. and l., and above and below 6 figures like those in the *Do Tal* with a sword, bud, and book, and a flag, and buds. Before the chief shrine *dwarapals* are sitting. Buddha is 11 ft. high from his seat to the top of his head, and 9 ft. 6 in. broad from knee to knee, and his foot is 2 ft. 6 in. long. *Chauri*-bearers and 4 other figures stand on either side, and there are 5 Buddhas up above on shelves. There is a lobby to this on the S. side with the same 9 figures twice repeated. Ascend 12 steps to a side chapel, where in the central recess is Buddha on a *singhasan*, with 2 attendants, and on the wall to the rt. and

l. the same 9 figures and Padma Pani with a female figure to .., and a male to .. Ascend 11 steps to the 2nd storey, where there is a chamber the same as the upper floor of the *Do Tal*, except that there are 3 cross aisles instead of 2. Before the central shrine is *Vajra Pani, holding the *Vajra* on the top of one finger of his rt. hand. Buddha has been coloured red lately, and a black moustache has been given to him. His figure is the same height as that of the last-mentioned Buddha, and has the usual attendants, and 4 figures on either side of the shrine. On the front wall on either side are the male and female patron. On the l. of the entrance is a recess, and on the E. wall is a row of figures, and the representation of a Dahgopa. There is a seated figure of Buddha, with his legs down, and the Wheel of the Law between them, and antelopes on either side. Ascend 12 steps to a figure on horseback in the window jamb, the only such figure among the thousands of Elura, and then 11 steps to the 3rd floor. Here is a great hall 102 ft. long, with 42 square pillars. On the l. side are 4 sitting Buddhas, in compartments at the end of the aisles, and on the S. side 5 of the same. On the back wall are 9 *Manushya* Buddhas. Each has a different kind of tree over his head. On the other side are 9 Gyanan or *spiritual* Buddhas. The Buddha in the central sanctuary has had the face smeared yellow, and a clay nose added, with a ribbon of tinsel. This sanctuary is peculiar, as you can walk round the central Buddha. There are the usual *chauri*-bearers, and 4 male figures on either side. There are figures also of the patron and patroness. The Buddha is 11 ft. 6 in. high to the top of his head, and 9 ft. from knee to knee. His feet are 2 ft. 6 in. long. In the vestibule are 6 seated females, 1 of which on either side has 4 arms. The others hold the usual emblems. There are 18 Buddhas seated above on shelves. On the pillar in the centre on the 2nd floor is an inscription in old Sanskrit characters. There is a cistern on the l. of the entrance, which was dry on the 9th of March, 1877, but is usually full of good water.

After an interval of 35 yds. you come to the 1st Brahmanical cave, which is called Ravan ka Khai, "the ashes of Ravan." In this cave there is a hall with 12 pillars and a corridor with 4 pillars. 2 pillars, however, in the corridor, and 1 in the hall have perished. The central hall is 30 ft. sq., and the pillars 3 ft. sq., and carving begins at 5 ft. 6 in. from the ground. In the N. recess in the corridor is Durga treading on a tiger, and in the S. recess another figure of the same goddess killing a buffalo, probably intended for *Maheshasur*, the buffalo-headed demon. In the next niche on the N. is Lakshmi, with attendants and elephants pouring water over her. Below are lotuses and figures holding water-bottles. In the 3rd niche is the Varaha Avatar, with a female figure representing *Prithvi*, "the Earth." In the 4th niche is Vishnu, with Sita and Lakshmi and attendants. In the frieze in front is Garuda. In the 5th niche are Vishnu and Lakshmi, with Ganas below. In front of the central shrine are dwarf-pals, with a grotesque dwarf holding a crooked stick. The shrine is empty, with a fragment of a figure of Durga with the *Trisul* or trident and *Damru* or drum. To the rt. of the shrine are Death and Kali on the rt. side of the *Pradakshina*. Death has a scorpion on his breast and a snake round his arm, and holds a skeleton by the head. Then follow figures of Ganpati and the *Sapta Matra*, "the seven divine mothers." The 7th has an antelope's hide over her shoulders. In the 6th niche is Vira Bhadra or Bhairava, i.e., Shiva in his destroying form. He holds in 2 hands an elephant's hide, in another a human figure by the legs, on another a bowl to catch blood, in another a spear on which a man is uplifted and transfixed. Shiva has the *Mandmala* or skull necklace. Parvati sits at his feet and Ganpati behind. In the 7th niche is Ravan, with 5 heads, about to shake Kailas or Shiva's heaven. Ganas are making faces. Shiva and Parvati are seated above. In the 8th niche Shiva is dancing the Tandav or Dance of Destruction, and Kal or Death is grinning behind. Musicians are beating drums. Shiva has the tiger's skin and snake. Parvati is in the corner. In the 9th niche Shiva and Parvati are playing the game called chausar or chaupat. Parvati is cheating Shiva. Below is Nandi with the Ganas. Ascend now 20 ft. of steep rock, leaving a cell on the l. towards the cave called the *Das Avatar*. Ascend 32 steps to the mouth of the cave, which begins with a square mandapam.

The verandah has fallen down and only 1 pillar remains. The entrance is on the other side facing the principal cave, but there is a flight of 9 steps up to the W. wall, on which is a long inscription in ancient Sanskrit characters. There are 14 lines in rather small letters, each line 9 ft. 8 in. long. The whole inscription is 18 in. deep. Walking to the entrance you see 2 dwarf-pals, 1 standing on a tortoise, the other on a makar or alligator. The façade of the principal cave is 99 ft. long from N. to S., and the distances between the pillars are as follows:—between N. pilaster and 1st pillar, 10 ft. 6 in.; between 1st and 2nd pillar, 10 ft. 2 in.; between 2nd and 3rd pillar, 10 ft. 3 in.; between 3rd and 4th pillar, 11 ft. 7 in.; between 4th and 5th pillar, 10 ft. 2 in.; between 5th and 6th pillar, 10 ft. 3 in.; between 6th pillar and S. pilaster, 10 ft. 6 in. The periphery of the pillars, which are square, is 15 ft. 11 in. each. The height of the pillar shaft is 10 ft. 3 in. The plinth or bracket capital, which is quite plain, is 15 in. high. Ascend now 3 steps to enter the mandapam. The central room is supported by 4 pillars, and is 17 ft. 7 in. from E. to W., and 18 ft. from N. to S. The periphery of each pillar is 9 ft. 2 in. The room is quite plain, and there is nothing to remark except a circular hole with a diameter of 2 ft. 6 in. at the W. end. This mandapam was probably a temple of Nandi. There is a stone Nandi weighing some tons, and broken, in the upper storey of the principal cave, which may have been removed thither from the mandapam. The pillars are 8 ft. 7 in. high. Descend now 3 steps into the court, and ascend a flight of 6 steps flanked by the forequarters of 2 elephants into the principal cave. The great room in the lower storey is 98 ft. long, and 44 ft. 11 in. deep. It is quite plain, and there is nothing whatever in the shrine or in the 2 cells to the rt. or the 2 to the left. Ascend 16 steps to a landing place, in front of which is a row of compartments. In the 1st is Ganesh, in the next Shiva and Parvati, and then Durga killing Maheshasur. Ascend now 10 more steps to the 2nd storey. In the front are 6 pillars and 2 pilasters elaborately carved. On the 1st pilaster is a female dancing, probably Durga dancing the Tandev. Two Gandharvas form an arch over her, while their tails branch out into innumerable flourishes. In the N. recess of the verandah is Shiva dancing the Tandev, and in the S. recess he is represented with much the same jaunty look, but not dancing. These figures of Shiva are each 11 ft. 7 in. high, and are executed with much spirit. The pillars between the pilasters are ornamented alternately with urns of flowers and a kind of water-vessel, on the sides of which are knotted cobras. The knot is peculiar, like two handles interlaced. The S. pilaster is plain. This great chamber is 102 ft. 6 in. from E. to W. and 45 ft. from N. to S. There are 6 rows of pillars, making 46 in all, besides the front ones. The 1st and 6th row have 7 pillars each, and the other 4 have 8 pillars each. A series of recesses containing spirited groups of figures in *alto rilievo* encircles the whole chamber. In the 1st recess on the l. of a person entering the room is Shiva in his destroying character as Bhairava, executed with wonderful spirit, and intensely horrible. While the god rushes on, trampling down and slaughtering his victims, the wretched human race, Kal, or Death, a most ghastly and frightful figure, stretches out with almost supernatural extension beneath him, holding a bowl to catch the blood of a corpse which Shiva carries transfixing on his spear. An owl, worthy of Der Freischütz, hovers over Death, and a terrific grinning demon with protruded tongue gloats over the butchery from the top corner. The figure of Shiva is 10 ft. high. He has his left foot planted on the head of a human being, and his attitude is that of lunging or springing forward with his whole force. He holds in his lowest rt. hand a spear on which a man is transfixed, in his next lowest rt. hand a straight two-edged sword, in his next rt. hand the Jogi's drum called *Damru*. His upper rt. hand is broken. In his upper l. hand he holds a vast elephant's hide, which overhangs the whole group, and the head of which extends to the E. corner, where the devil is grinning. His next upper l. hand with the lowest rt. grasps the spear; the next l. hand holds a bowl to catch the blood. His lowest l. hand is broken. Death in his rt. hand grasps a large curved knife, something like the well-known weapon of Nipal. Shiva wears the *Mundmala*, or "necklace of skulls," and a belt of cobras. Shiva has the same jaunty, devilish look

as when dancing the Tandev. In the 2nd recess, going from l. to rt., Shiva is represented dancing the Tandev, during which diversion of the destroying deity creation is said to go to wreck and ruin. His l. thigh and leg are entirely gone. One of his l. arms is violently thrown back over his body in a way which is perhaps unnatural, but which adds much to the extraordinary effect of the figure. Musicians are playing as usual, but there is no figure of Death. Shiva is 9 ft. 4 in. high. In the 3rd recess there has been a *Lingam*, but there is now only a *Yoni*. In the 4th recess Shiva and Parvati are represented playing *Chaupat*. Below the *Ganas* are sporting with Nandi. In the 5th recess is represented the marriage of Shiva and Parvati. The gods are looking on, and Brahma is seated between them as if to attend to the *Hom*, or sacrificial fire, of which, however, there is no trace here. In the 6th recess Shiva and Parvati are represented in Kailas. Ravan with 5 heads is seated below, shaking Kailas with his 20 arms. Two *Ganas* are grossly represented insulting him. The back wall here begins. In the 1st recess is Shiva issuing from the *Lingam*, and piercing with his trident Yama, who has thrown a rope over the neck of a worshipper of the *Lingam*. In the 2nd recess Shiva and Parvati are standing. A row of heads and hands appear at their feet, the faces looking towards the visitor. It is not clear whether they belong to worshippers or to decapitated victims. Shiva wears the long *jatti*, or matted head-dress, from which the Ganga or Ganges flows down. From this you pass into the vestibule to the shrine, and find on your l. a gigantic figure of Ganesh. The vestibule is 41 ft. 2 in. from N. to S., and 11 ft. 4 in. from E. to W. Shiva is in the opposite recess to that of Ganesh. The shrine has 2 dwarf-pals, and within is the *Lingam*. Bats have made the place so fetid that it can hardly be entered. On the rt. of the shrine is Lakshmi, with elephants pouring water over him. In the 1st recess past the shrine to the r. there is a group of what may be called the rival deities. Brahma, Vishnu, and Shiva dispute precedence, and Shiva appears in a cleft in the *Lingam*, which is of such dimensions that Brahma, in the form of a bird, tires himself in vain to find the top, and Vishnu as a boar burrows with equal ill success to reach its spot. On this, the legend says, they yielded precedence to Shiva. In the 2nd recess to the rt. is Shiva making war from a car of which Brahma is the charioteer. The wheels are badly done. In the 1st recess in the S. wall Vishnu is represented protecting cattle, which are crouched to his rt. In the 2nd recess Vishnu, or Narayana, is represented with some grace in a recumbent attitude. A lotus issues from his navel, and Brahma is seated on the flower. In the 3rd recess Vishnu is represented riding on Garuda, who has the form of a man with wings, but the wings are not distinct. In the 4th recess there has been a *Lingam*, but it is now empty. In the 5th recess Vishnu appears in the Boar Incarnation with a long snout, protecting Prithvi, "the Earth," who is in the form of a young, well-shaped woman assailed by the Nagas. In the 6th recess Vishnu, in the Dwarf Incarnation, is making the famous 3 strides, that is, planting one foot on the earth, a second on the sky, and with the 3rd thrusting Bali down to hell. In the 7th recess Vishnu appears as the Nar Singh, or Man-Lion, killing Hiranya-kasyapa.

The visitor now comes to the caves on the rt. or N. of the road, and the 1st of which is *Kailas*. This is a monolithic temple standing on its original site as excavated out of the solid rock. It is 265 ft. from the most E. wall of the corridor to the W. end of the mandapam + 100 ft. thence to the road—total 365 ft. long from E. to W., and 191 ft. 5 in. broad from N. to S., and 96 ft. high. There are 3 grand divisions: 1st, the Portico with its wings on either side extending nearly over the whole breadth. The square main building in the centre is 46 ft. 8 in. long from E. to W., 45 ft. 6 in. high, and 70 ft. 2 in. broad from N. to S. The door of the portico has 2 dwarf-pals, that to the rt. standing on a tortoise, that to the l. on a *makar*. Next on the l. are 2 female figures and 1 male, and 4 deities; the first on a *makar*, the 2nd on an antelope, the 3rd on a ram, and the 4th on a *Hans*. The next 3 statues are too much injured to be made out at all. The next is the contest of the *Lingam*. The next is broken, and the next is Shiva. To the rt. on the wall of the Portico is Vishnu with the Shesh Nag. He next appears

on an elephant, and then on a ram. The next 2 representations are ruined. Then comes the Boar Incarnation, then Vishnu on Garuda, then Vishnu making the 3 strides. The next is ruined. Then comes the Nar Singh Avatar, then Shiva dancing the Tandev. Next comes the Rock, but a cavern has been excavated at the foot of it, perhaps for water. The Portico inside has in its centre a chamber on either hand supported by 2 pillars and 2 pilasters well carved. The doors are 4 ft. high and 7 ft. wide. The passage between the Portico and the Mandapam is 19 ft. 1 in. long, and has a bridge overhead. Between the bases of the pilasters the passage is 15 ft. 3 in. long, 12½ ft. high, and 22 ft. broad. On the W. wall of the mandapam is Lakshmi seated on a bank of lotus flowers 4 ft. deep, with birds among the leaves. Elephants, as usual, are pouring water over the goddess. The mandapam is solid rock, and has not been excavated. Parallel with the centre of the passage just mentioned are carved 2 elephants. That on the rt. is so ruined as hardly to be recognizable, but that on the l. is tolerably preserved, and is 15 ft. long and about 10 ft. high. There are *dwarvals* at the sides of the door in the western wall of the mandapam, though there is no entrance, and on the pedestals are short inscriptions in old Sanskrit, which have been copied by Mr. Burgess. On the eastern face of the portico likewise are 2 *dwarvals*, and on the rt. Maheshasur. Next is Shiva, then Shiva and Parvati, then a figure unknown. Then comes a figure holding a stalk with a *makar* on his l. Next is Vishnu on Garuda, then Shiva and Parvati, and some empty cells. On the l. is Shiva in his car, then a figure unknown, then 4 broken figures, then Shiva and Parvati with Ganesh and empty cells. Outside the mandapam to the S. is the Narsingh Avatar. Parallel are 2 *dwarj Stambhs*, being obelisks finely carved, 45 ft. high, with originally tridents at the top, now in one case gone, in the other broken. In the passage between the mandapam and the temple are 2 groups, in the centre of which sits Shiva with flames issuing from his head. The gods sit round in terror, and supplicate for mercy. On the N. side of the mandapam is scribbled "Nagarwala party," and the names of some Parsis. The centre figure is Shiva dancing the Tandev. Some of the colouring remains. Then come Vishnu and Shiva with *dwarvals*, with a procession of elephants below. Below that again are some figures in questionable taste.

The Temple.—On the N. W. side are *dwarvals*, and Ravan with 20 arms and 5 heads shaking Kailas, Shiva's heaven. At the steps are elephants. On the N. side is the war of the Mahabharat. The story is in 2 bands below, and the battle in 5 bands above. There is a black basement with *Shardulas*, elephants, and lions, and 27 ft. of solid rock. The temple is built on this. The lowest part is lighter-coloured, having been buried in 10 ft. of earth. Remark at the S. E. end a handsome frieze with bead festoons. Ascend 12 steps and look at Ravan shaking Kailas in the S. wall underneath a porch where was a bridge, which has fallen. Parvati clings to Shiva in alarm, and a female figure is flying close to her feet. *Dwarvals* are seated on both sides. A monkey is climbing near Ravan's upraised arm. At the end is the war of the Ramayana in 8 bands. On the W. side is Brahma in the centre, with female *dwarvals* and Shiva and Vishnu. Ascend now 39 steps to the doorway of the hall. There are *dwarvals*, and on the rt. the *Ling* contest. On the l. is Shiva holding Parvati with the l. arm and pushing a Naga female with the rt. Between is a window with handsome scroll-work, and a niche with Shiva killing Yama. Observe the good painting in the ceiling. The total height of the centre room is 17 ft. 11 in. Enter now the great central hall, the roof of which is supported by 16 pillars, 14 ft. 2 in. high and 11 ft. in circumference. This hall is 50 ft. 4 in. from E. to W. and 52 ft. 7 in. from N. to S. In the centre of the ceiling in *alto rilievo* is Shiva dancing the Tandev. The pillars are exquisitely carved. The 4 central pillars are of the same pattern and have capitals, whereas the outer pillars have not. There are porticos to the N. and S. with 2 elegantly carved pillars and 2 pilasters to each. At the E. end on the roof are 5 small towers with shrines. The rock at the back is 107 ft. high. Descend now into the court and ascend 12 steps to the landing place, where is a Lakshmi, and 24 more steps to *Lanka*. At the S.E. end of *Lanka* is a fine group

of Shiva dancing the Tandev. Observe the well-carved skull in his head-dress. The central room is 59½ ft. from N. to S. and 60 ft. from E. to W. There are 16 pillars, the same as in Kailas, with alternately one of the Elephanta type. The height of the pillars is 9 ft. 5 in., and their periphery round the square base 13 ft. 10 in. and round the 16-sided part 11 ft. There was in the shrine a *Lingam* which has been destroyed, and on the back wall of the shrine is the *Tsimurti*, 7 ft. high. This is the same as the bust of the celebrated Triad at Elephanta. The Elephanta bust being mutilated, it becomes possible to restore it from these designs, which are quite intact. The centre figure has a placid face with one arm it holds the *mala* or rosary, with the other a cocoa-nut. On both arms above the elbow there is a twisted ornament, intended probably to represent a snake. In the cup is the crescent moon attached by a braid. On the l. side of the cup is a skull. The *Janwa*, or Brahmanical cord, unlike that of the present day, is as thick as a rope. The rt. hand face of the triad has an impression of fury; the eyes starting, the mouth open, and the brow and cheeks corrugated. The rt. hand holds a dish, which may refer to Shiva's drinking the poison, which was produced when the gods and Asurs churned the ocean, or it may be the vessel in which Shiva caught the blood of Ratnasur, every drop of which, on touching the earth, produced a new dæmon. In this dish Colonel Sykes supposes resin was placed and kindled to represent the god breathing fire, a characteristic of Shiva. The l. hand holds the Nag or cobra. The l. face is smaller and more feminine. The head-dress consists of the Nag, the head of the snake, forming the top-knot. Both arms have bangles, joined by a longitudinal bar, and like those worn by the women of Gujarat, which thus establishes the female sex of the figure. The rt. hand holds a mirror, the l. a pencil or brush for applying collyrium to the eyelids. The bust is indubitably intended to represent Shiva, in the centre face, in his ordinary character; and the other two faces, in his quality of *Ardhanarisha*, half male, half female. This is the only *Trimurti* in any large cave. The raised platform in the centre is 24 ft. 3 in. from N. to S. and 42 ft. 2 in. from E. to W.; it is raised 1 ft. above the other floor. In the centre of the N. wall is Shiva, with Brahma on his rt., and Vishnu on his l.

The Corridor.—In the 1st niche, beginning from the l., is Ravan, penitent, cutting off 9 of his heads, which he has suspended as offerings round the *Lingam*. In the 2nd niche are Shiva and Parvati; in the 3rd the same holding the *Lingam*, between them; in the 4th are Shiva and Parvati, in the 5th Shiva standing, in the 6th Shiva playing *chaupat*, in the 7th a male figure unknown, in the 8th an unfinished figure of Ravan shaking Kailas, in the 9th Shiva and Parvati with Nandi below, in the 10th Siva and Parvati playing *chaupat*, in the 11th Shiva with *Ganas*, in the 12th Shiva issuing from the *Lingam* and stabbing Yama, in the 13th the marriage of Shiva and Parvati, in the 14th Bhairava with Kali, in the 15th Shiva in a car with Brahma driving, in the 16th and 17th Shiva and Parvati, in the 18 Shiva dancing, in the 19th Shiva with one hand to his head-dress, in the 20th unknown figures, in the 21st Vishnu, in the 22nd to the 27th Shiva with various figures, in the 27th to the 32nd, the same with various other figures, in the 32nd Shiva as the Hermaphrodite *Ardhanarisha*. In the 34th Vishnu, trying in vain to pull up the *Lingam*, in the 35th the Narsingh Avatar, in the 36th the birth of Brahma, in the 39th Vishnu on Garuda, in the 38th the story of the 3 steps, 39th unknown, in the 40th the Varaha Avatar Incarnation, in the 41st Vishnu killing the Nagas, in the 42nd Vishnu, in the 43rd a female deity unknown. On the rt. of the entrance is the *Sapta Matra* cave, that is, the cave of the Seven Mothers, who are distinguished among other female figures by all having children in their laps. This is the largest representation of the Seven Mothers in the whole series. All the figures are much mutilated, but enough remains to show that they were well executed. On the rt. is a frightful group of Kal and Kali, Death and Hecate.

The Indra Sabha.—Here the Jain caves begin. The *Parasnath cave* is a good half m. beyond this, and beyond the spur of the hills, and this cave is 1½ m. from Kailas, and the movement now is from N. to S., and omits the Parasnath cave as not worth the extra trouble. The rd. has very sharp dips and ascents,

and great caution is required in riding. The path along the foot of the hills is shorter than the rd., but is excessively rough, and covered with cactus and a low thorny jungle. It is here that the panthers, who have done so much mischief, dwell. The *Jagannath cave* adjoins the Indra Sabha, and 1 or 2 small caves are contiguous, and form the group. To the rt. of the entrance to the Indra Sabha is a cave consisting of only a vestibule and shrine. The vestibule is 19 ft. 3 in. broad, and 12 ft. 11 in. deep. There are 2 pillars before the shrine, 6 ft. 9 in. round the square part, and 8 ft. 4 in. high. On the l. of the entrance is Parasnath, 5 ft. high. Remark also another figure with a human head on his shoulders, and a lion's face in his belly. Gomati Rishi, distinguished by 3 thin branches of a tree round his thigh and body, is on the rt. The branches here look more like bands of ribbon. Female attendants stand beside him. In the shrine the central figure is Maha Vira with 2 *chauri* bearers. This saint is known by a lion being in the centre of his throne. In this case a wheel is in the centre, and a lion on either side. Ascend now 4 steps into the court. On the l. is a monolithic column, which fell the night after Lord Northbrook visited this cave. Its pedestal stands broken at the top, but the shaft lies against the rock at an angle of 30 degrees. The base of the column is 10 ft. high, and there is one niche remaining with a figure in it. The shaft from the base to the abacus is 18 ft. long. On the summit is a group of 4 figures back to back. The circumference of the octagonal part of the shaft is 12 ft. 4 in., and of the 16-sided part above it is 10 ft. 9 in. Opposite to this column on a platform on the rt. of the entrance, is an elephant 11 ft. high, and 12 ft. 3 in. long. The roof of the Mandapam is similar in style to that of Kailas. The Mandapam is 12 ft. 3 in. sq., outside measurement. Observe 2 remarkable figures of nondescript animals, one on each side of the door, about 8 ft. from the ground, the size of hares, rearing up on their hind legs, with the mouths of wild beasts and tusks. Ascend 7 steps into the Mandapam, in which are 4 Jain deities, probably Mahabirs. A wheel is in the centre of the throne, with a lion on either side. In the middle of the ceiling is the usual ornament of a large lotus. Descend 8 steps into the Court. On the l. of the Mandapam is a car with the figure of Parasnath on the l. and Gomati Rishi on the rt. On the rt. of the shrine is Indrani, and on the l. Indra. It is just possible, however, that these may be figures of the patron and patroness, but they are accepted by Hindus as deities, for they are smeared with red pigment. The vestibule is 26 ft. broad. In the shrine is Maha Vira with *chauri* bearers. There are 6 pillars. The façade is well carved. To the E. is a small cave. To the l. is Parasnath, to the rt. Gomati. On the rt. of the door is Indrani, on the l. Indra, and these figures are to be *especially remarked*, as being the best executed statues in the whole series of caves. Indrani is very pretty, and modelled with great care. Remark the well executed cushion at her back. In the shrine is Maha Vira, with a lion in the centre of his throne. The shrine is 12 ft. broad, and 8 ft. 4 in. deep, and has 2 good pillars. The façade of the opposite cell on the rt. is well carved. There are figures of Indra and Indrani, and some Jain saints. Ascend 3 steps into this cave. On the one side is Indra, on the other Indrani. This cave is 11 ft. 10 in. deep, and 11 ft. 7 in. broad. Parasnath is on the l. of the shrine, with the usual accompaniment of Hindu deities tempting him. One of them has a lion's head in his belly. On the rt. is Gomati. In the shrine is Maha Vira with *chauri* bearers. The *Main* cave in the lower floor is supported by 6 sq. pillars, and has 2 in the verandah. It is 84 ft. 10 in. deep, and 48 ft. 2 in. broad. In the shrine is as usual Maha Vira. In the l. hand cell at the end of the verandah, are Indra and Indrani well executed. On the rt. of the door is Shantinath, "Lord of quietude," and the same on the l. Under the rt. hand figure is an inscription. On the pedestal of the figure of Shantinath is another. Ascend now 8 + 14 steps to the upper floor, where the great chamber, including the verandah, is 98½ ft. deep, and 78 ft. broad, with 4 pillars in the verandah; and 4 pilasters and 12 pillars in the centre. This cave is called the *Indra Sabha*, or "Court of Indra," from the figures of Indra and Indrani on the l. and rt. of the verandah. These are the largest figures of those deities to be found in the caves. The pillars are 13 ft.

6 in. round the square part of the shaft, and 8 ft. 4 in. round the neck or thinnest part. They are cushioned pillars, very finely carved and ornamented with festoons of beads. Over Indra and his wife are trees, one of which is the jack-fruit tree, with monkeys and peacocks in the foliage. In the centre of the chamber there has been a short pedestal, with the usual 4 figures back to back. Around the corridor in niches, on the E., W., and S. sides, are Jain saints. On the rt. of the N. side is *Gomati* standing on an ant hill, with snakes issuing from the holes. H. is 9 ft. 5 in. high. On the ground in front are 2 deer, a rat, and a snake, and behind his rt. leg is a scorpion. He has 2 female attendants, and some worshipping figures are on the side walls. In the shrine is Maha Vira, known by the line in the centre of his throne with *chauri* bearers. The doorway is most elaborately carved with figures which have been plastered and coloured. Parasnath is on the l. with the usual tempters. Pass now from the S. W. corner of this chamber into a smaller cave, which has no name, where the sculpture resembles that just described. Pass through its S.W. corner into the *Jagannath cave*. In the centre chamber are 12 pillars and pilasters, and in the verandah are 2 pillars and 2 pilasters. The pillars are ornamented with overlapping scroll-work, beginning at 4 ft. 7 in. from the ground, in a band 2 ft. 2 in. broad. The pillars have cushioned capitals. In the shrine is Maha Vira, and Indra and Indrani are rt. and l. of the door. In the corridor are Jain saints. Descend from the S.E. corner, 15 steps to the lower floor, which by Sir Salar Jang's order has been lately cleared of 8 ft. of earth. The carving of the pillars, and the sculpture of Indra and Indrani, deserve commendation. Descend now into the court, and ascend 8 steps into a side cave. On the pillars to the rt. and l. are Kanarese inscriptions. The pillar on the l. of the shrine has $3\frac{1}{2}$ lines on the pedestal, in Old Kanarese. Pass now through S.W. corner into a small cave, where remark that the door has a window on each side, a very unusual thing in the caves. Ascend the rock now about 100 ft., and walk 150 yds. in a S. direction to the *Chhota Kailas Cave*, so called from its general resemblance to *Kailas*, though it is much smaller and has no *Mandapam*. The path to this cave is over very rough rocky ground, with tall cactus and thorn jungle. The cave is 220 ft. above the plain, and there are deep ravines about full of jungle. On the way you pass on the l. a large cave, entirely filled with earth. Before the removal of earth ordered by Sir Salar Jang, the *Chhota Kailas Cave* was in such a state that no examination of it was possible. The first thing to be done is to ascend a slight eminence to the rt. of the cave, to get a general idea of it. The temple had a *Shikra*, but that is now gone. The pillars and arrangement are the same as in *Kailas*. The building is 94 ft. long from E. to W., and 66 ft. broad from N. to S. The pillars and interior have been cleaned, and the colours still remain. To the rt. and l. of the entrance the Tandev is depicted. The style of this cave is mixed Jain and Brahmanical.

Walk now along the side of the hill to the S. over very rough ground, where even in March the rock glows like a furnace, and seems to scorch the feet. It is half a m. from the *Chhota Kailas* to the *Dumar Lena Cave*. The etymology of this name is a moot point. Colonel Sykes thought it meant "Nuptial Palace." Others have thought it meant Two-Mansioned Cave from *Du Mahall*. This is the merest conjecture. The total breadth of this cave from N. to S. including side courts, is 195 ft. 4 in., and the depth from E. to W. not including the side court, is 148 ft. 7 in. The height is 17 ft. 6 in. There are 7 aisles, which run E. and W. There are 26 pillars with cushioned capitals, and 18 pilasters. The shrine has 4 doors and *dwarpuks*, with female attendants on either side of each door. There is a *lingam*. On the l. is Bhairava, and on the rt. Shiva and Parvati in *Kailas* with Ravap. At the W. end of the first aisle on the N. side is Shiva dancing the Tandev. In the corresponding place on the other side are Shiva and Parvati playing *shaupat*, and the *Ganas* frolicking with Nandi beneath. At the E. end of the first aisle on the N. side opposite the Tandev is Shiva on a lotus supported by Nagas. At the E. end of the S. aisle, opposite to Shiva and Parvati playing *chaupat*, is the marriage of Shiva and

Parvati. Bramha is shown with the sacrificial *Hom*, which is thought by some to be well executed. The gods are present at the marriage. In the N. court on the E. side is a female called by Indians Sita, whence the cave is called Sita's *snan* or Bath. In the S. court on the E. side is another female with attendants. On either side of the entrance is a small cave. There are 2 lions at the main entrance, and 2 others at the entrances to the N. and S. courts. Outside is a slightly raised circular platform for Nandi. One of the lions at the door is 6 ft. 10 in. long, from the top of the head to the tail, and 5 ft. high to the top of the head. The *dwarvals* on the N. side of the shrine are 15 ft. 2 in. high, the most gigantic in the caves. Pass now $\frac{1}{3}$ of a m. S., leaving on the l. 2 caves called the *Milkmaid Caves*, and one which is called *Nilkanth* to the *Rameshwar Cave*. The verandah is 68 ft. from N. to S., and 23 ft. 8 in. from E. to W. On either side of it are 2 pillars with cushioned capitals and 2 pilasters. There are 2 recesses on either side of the verandah, 23 ft. 3 in. from E. to W., and 12 ft. 12 in. from N. to S. There are 4 pillars and 2 pilasters in the verandah most elaborately carved. The brackets are female figures with foliage above them, and dwarfs in attendance, one of whom has the characteristic crooked stick. In the 2nd recess at the E. end, the Tandev is represented with Kal between Shiva's legs. Along the S. wall are the *Sapta Matra*. On the W. wall is a skeleton group, which might be called the family of Death. One is said to be Kali, but they might all do very well for Furies. Several human figures lie at their feet, as if just slain. On the l. is a chapel, on the E. side of which is *Mahishasur*. In the centre of the N. side is the marriage of Shiva and Parvati. Observe to the E. of the centre group 2 figures like Friars, with the middle part of their heads shaven. On the W. side, observe a figure with a ram's head. The *dwarvals* are 13 ft. 10 in. high. In the shrine is the *Lingam*. The Nandi in front is well executed.

Besides all these, at the extreme N. is the Parasnath, or more properly Parswanath cave, "Lord of Purity." Parasnath is the name of the Jain deity, and it is here given to an image measuring 10 ft. 6 in. sitting, with the hands in the lap laid one within the other, the fingers extended, and the palms inwards. The hair is curly and the head is canopied by a seven-headed serpent, whose folds, doubled behind the image, serve it as a prop. From the centre of the seat of the image half projects a wheel, above which on the cushions an astrological table is carved. Elephants and lions' heads support the seat on either side. There are also 5 sitting figures and 1 standing figure of attendants, decorated with ear rings, necklaces, bracelets, and anklets. A banker at Aurungabad, named Naimidas, built a handsome stone porch over this figure, about 140 years ago. There is also an inscription of the 13th cent., 1235 A.D. This image is an object of worship to the Gujarati Baniyas, and there is an annual pilgrimage to it on the 14th of the light half of the month Bhadra. A similar figure of Parsva in the desert of Parker in Kachh is described by Captain McMurdo, Trans. Lit. Society of Bombay, vol. i., p. 190. Before leaving Rozah, the traveller may visit the *durgah* or shrine of Shah Razu Katal, to the S. W. of the mess b. This is sometimes erroneously called the tomb of Thanah Shah, the last king of Golkonda, but that unfortunate monarch, whose real name was Abu'l Hasan, lies beneath a plain white stone 4 ft. 6 in. long, and 3 ft. high, at about 45 ft. to the E. of the Dargah. There is no inscription, but the learned of the locality declare this to be the resting place of Thanah Shah. The Dargah of Shah Razu is about 25 ft. sq., and 30 ft. high, and is quite plain. It is said to be 550 years old. The slab within is covered with a cloth, and has orrich eggs suspended over it. To the W. of it is a latticed enclosure of dark red stone, where lie the remains of Muhammad Khan, Governor of the Province of Aurangabad, under Aurangzib. Beyond this to the W. is a small mosque with 3 arches. All the tombs at Rozah are of the same kind, and do not exceed 40 ft. in height.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

ROUTE 37.

AURANGABAD TO AJANTA, 56 M. BY TONGA.

Names of Stations.										Distances.		REMARKS.	
										M.	F.	M. F.	
From Cantonment of Aurangabad to Dihli Gate of City										3	0		
Sarai of Nizam's Horse										2	0		
Harsol Village										2	0		
Chogah Ghat										3	0		
Chogah village										1	4		
1	Phulwari									5	4	17 0	
Patri village										3	0		
Pipalgaon										1	0		
Naigaon										3	4		
Alan...										2	0		
Kinola										2	4		
Chinabari										6	0		
2.	Sirrod									5	0	23 0	
× r. to Palod										2	4		
Lilagarhi										2	6		
Koalgaon										3	0		
× s. to Pawod										2	6		
Balapur										1	0		
3.	× r. to Ajanta									4	0	16 0	
Total...												56 0	

There is a firm of Parsis at Aurangabad, who will supply a tonga and relays of horses to convey the traveller to the caves of Ajanta, at charge of rs. 36. He will also probably require a cart for his heavy luggage, which will cost him rs. 11, and he will be wise to take with him a horseman or two to ensure the safety of his things. The Sadr Talukdar of Aurangabad on his application will provide him with the horsemen, to each of whom he will give rs. 3. Then there will be r. 1 at each b. where he stops for the room, say rs. 8 more, so that the total expenses, independent of food and wine, will not be less than rs. 61. The journey is very fatiguing, the rd. in many parts is rocky, and the holes occasion an amount of jolting which even a strong man will find disagreeable. Add to this that the Galloways which draw the tonga are often violently troublesome, and although the splashboard of the tongas is very strong, their hoofs often find their way through them. The worst part of all is the danger from the bees in the caves, which is really very serious. In 1877 Mr. Burgess the archaeologist was dreadfully stung, and had to remain in the r. for hours up to his chin in water, until the bees left him. It is therefore not surprising that so few persons have visited Ajanta, although without question the caves there are the most extraordinary sight that India has to show.

The traveller will drive from the cantonment and enter the city by the Makkah Gate, and pass out by the Dihli Gate, which resembles the former gate, but is in better repair. For 2 m. from the Dihli Gate the rd. is a fair one, but on reaching the barracks of the Nizam's Horse it becomes bad. On the rt. hand innumerable ruins stretch out as far as the eye can see, principally tombs, and of the time of Aurangzib and subsequently. The Choga Ghat rises about 150 ft., and crosses a mass of rock, and here the traveller must needs alight, and be thankful if his tonga gets over without an accident. He may stop at the village of Choga to take refreshment, and at Phulwari he will find a tolerably comfortable b. There is very fair shooting at this place of partridge, quail, and a few deer. The traveller will find the advantage of having a gutta-percha bath with him, as there are no bathing-tubs on this rd., and he will be cautious in taking his ablutions, as deadly snakes have been killed in the bath room. From Phulwari to Sirrod is a very long and fatiguing journey, and too much for the miserable horses provided by the proprietors of the tongas. There are milestones along the rd. as far as Ajanta. Ajanta is the place where the Duke of Wellington halted after the battle of Assaye, and there he quartered his wounded. As the battlefield of Assaye,

is not far from Sirrod, many travellers might like to visit it, but unfortunately there is no shelter whatever at the place, and a mere pathway leads to it. However, some persons might be willing to undergo any hardship to see the place. For them the following account of the battle may be interesting.

On the 23rd Sept., 1803, Wellesley, on reaching the village of Nalni, where he was about to encamp, learnt from his scouts that the armies of Daulat Rao Scindhia and Raghuji Bhonsle, Raja of Nagpur, were encamped on the Khelna r. within 6 m. of him. The English general had, at a council held with Colonel Stephenson at Badnapur, 10 m. to the W. of Jalar, on the 21st, agreed that the forces under their respective commands should move separately, and attack the enemy on the morning of the 24th. Now, however, being apprehensive that the Marathas would decamp if allowed a respite, he with great sagacity and decision resolved to attack them. He had with him about 4500 men, consisting of the 19th Light Dragoons, the 4th, 5th, and 7th Madras cavalry, detachments of Madras and Bombay artillery, the 74th and 78th Highlanders, a battalion of the 2nd, 4th, 8th, and 10th regiments of Madras N.I., and 2 battalions of the 12th. With these he prepared to encounter the Marathas, of whom 10,500 were regular infantry, trained by De Boigne; supported by 100 guns, and who had besides 30,000 horse, and irregular infantry as numerous as their regulars. On ascending a rising ground to reconnoitre, the English general perceived this vast host extending in a line along the opposite bank of the Khelna r., near its junction with the Jewah. Their right consisted entirely of cavalry, and their left, formed of infantry and guns, rested on Assaye. The English passed the Khelna at a ford beyond the enemy's left flank, and then formed, the infantry in 2 lines, and the cavalry, as a reserve, in a 3rd line, the left wing being towards the Khelna, and the right towards the Jewah. The enemy changed position as the British turned their flank, and formed in 2 lines, 1 fronting the British, and the other at right angles to the 1st line, but the left of both resting on the fortified village of Assaye. The Marathas, as the British were forming, opened a heavy cannonade, which did terrible execution. The infantry piquets and the 74th suffered in particular, and when the officer commanding the piquets was told to advance, he replied that the guns were disabled and the bullocks killed, to which message the English General simply answered: "Tell him to get on without them."

While the 74th were suffering in this manner, a powerful body of Maratha horse advanced to charge them, but were themselves met by the 19th Dragoons and the 4th Madras cavalry, who, passing through the broken ranks of the 74th, overthrew the Maratha horse, and rushed upon the infantry and guns beyond them. At the same time the English line advanced with the bayonet and completed the victory. Some loss was occasioned by the enemy's artillerymen feigning to be dead; and, after the British battalions had passed, rising and pouring in a fire in their rear. Eight of the old battalions of De Boigne, too, showed much firmness, and re-formed after they had been deserted by their own cavalry. It was in charging one of these battalions that Colonel Maxwell, who commanded the English cavalry brigade, was killed. The English loss in killed and wounded amounted to 1566 men, more than $\frac{1}{3}$ of the whole force engaged, for the horse belonging to the Peshwa and the Raja of Maisur, which accompanied General Wellesley, were formed at a distance across the Khelna, and had little or no share in the action. The Marathas had 98 guns taken from them, and their killed amounted to 1200, while the whole neighbourhood was filled with their wounded. Yadu Rao Bhaskar, Sindhia's minister, was among the slain, and his prince and the Nagpur Raja ignominiously fled soon after the battle began. On the English side the cavalry particularly distinguished themselves, and, as cases of individual heroism, those of Lieutenant Nathan Wilson and Sergeant Strange deserve record. Mr. Wilson continued to charge at the head of his troop after his arm had been shattered by a grape shot, and hung dangling at his side; and Strange rode out the day after he had been speared through the lungs.

Ajanta was fortified by Asaf jah, as Nizam 'Ali is often called. He also b. the bridge with 12 arches over the stream which is sometimes called the Wagora,

sometimes the Wagul. From this bridge a very execrable rd. leads to what is called the Sarai, which is at present occupied by Major Gill. It was at this Sarai that the Duke of Wellington stopped after the battle of Assaye. Major Gill found the name Arthur Wellesley written on the wall, but concluding that it was not the Duke's writing expunged it. Major Gill entered the service in 1824. Having been trained as an artist, he was able to take those valuable copies of the paintings in the Ajanta caves, most of which perished in the fire at the Crystal Palace. A few years ago he was disabled by an accident in a bullock carriage. The animals not being properly broken, ran away, upset the carriage and broke his thigh. Before that time he was an ardent sportsman and has killed 150 tigers with his own guns. The Sarai is b. on the edge of a gloomy ravine, about 200 ft. deep, and almost precipitous. The r. runs at the bottom, and the whole scene is worthy of Salvator Rosa. The window of the room in which Major Gill sleeps, opens on this ravine, and one moonlight night he was awakened by his servant with the word "A Tiger." It was a large panther that lay on the rock within a few feet of Major Gill's window, and he was able to get his rifle and shoot it when it fell headlong down into the r. below. The principal mosque is N. of Major Gill's house. It has 7 scalloped arches, and resembles the principal mosque at Aurangabad. S. of the mosque is another Sarai, which has 84 rooms. Over the gateway is the date 1124 A.H. The building is octagonal, with 11 rooms in each side, except the sides where the gates are. One of the gates is spoiled by having a modern room b. in it by a Dr. Quentin. Proceeding through this gate and turning to the rt., one comes to a piece of ground near the Fort wall, where some of the heroes of Assaye were interred. There is a very large tomb without inscription, where a number of soldiers were buried. There is also a tomb going fast to decay, with the inscription Lieut.-Col. H. Strahan, who died 20th of November, 1825. Other English tombs have been ploughed up and destroyed. The caves are situated 5 m. N.W. of Ajanta. The rd. lies along the brow and down the side of a very steep ghat. Just at the point where the descent begins, there has been a gateway, and in former times probably a guard. The descent is excessively steep, and the upper part is very bad and stony. The rd. passes along the edge of a ravine about 600 ft. deep, in which Major Gill has killed many tigers. The whole distance from Ajanta to the t. b. at Fardapur can be done in a bullock carriage in 1 hour and 30 minutes. Fardapur lies about $2\frac{1}{2}$ m. N. of the ravine in which the caves are. The b. has 2 small rooms with lavatories, and a chaprasi in attendance, and at the village of Fardapur $\frac{1}{4}$ of a m. off, there is a large Rest House for Indians. Supposing that the traveller has not tents with him, he will of course stop at the b. at Fardapur; if he has tents he can pitch them at the entrance to the ravine where the caves are. It will save him a ride or walk of $2\frac{1}{2}$ m. There is also a small house at this spot where the gentlemen who have been sent up to copy the paintings of the caves by the Bombay Government have their headquarters, and they also pitch tents, but say they have been annoyed by the panthers, and one night had a bullock killed among their tent ropes. Having located himself, the traveller will do well to send for Imam, the great bee-hunter of Ajanta, and inquire in what state the bees are. If likely to be troublesome, Imam will arrange for their destruction before the caves are visited. The caves are situated in the face of a precipitous rock at the end of a gloomy ravine, which is a cul de sac, and has no outlet. They extend about 700 yds. from E. to W. the hills that form the ravine being 500 ft. high, and having a scarp from 80 to 120 ft. The caves are excavated in horizontal strata of greywacke, with embedded portions of quartz approaching chalcedony. Blood-stones, in which the portions of jasper are larger than usual, may be picked up in a water-worn state in the bed of the stream. Indurated felspar is also in abundance. On reaching the extremity of the defile the traveller comes to what is called the *Sat Kund*, or "seven falls," being a cascade of which the lowest fall is about 100 ft. high, the others together being about 100 ft. more. Immediately below the fall the ravine makes a sudden turn to the rt., and it is in the perpendicular cliff, forming the outer side of the bend and facing the ravine, that the caves are situated. The

most ancient are those about 150 yds. from the E. end and lowest down in the rock, being not above 40 ft. from the bed of the torrent. From this point they gradually rise to the W. extremity, where they are from 100 to 140 ft. from the bottom of the glen, and are unapproachable, the pathway on the face of the rock, by which they were formerly accessible, having fallen. In the E. division also the altitude at which the caves have been dug increases from about 40 ft. to 110 ft. Mr. James Fergusson has pronounced the Ajanta caves to be "the most perfect and complete Buddhist caves in India, without any admixture of Brahmanism, and containing types of all the rest." Following his arrangement the caves may be numbered from 1 to 27, the first being the lowest down the stream, beginning at the E. end and 27 being the last accessible cave on the W. extremity. Having passed through the romantic glen of the caves and crossed and recrossed the Wagora r. many times, the traveller will arrive at the foot of the only path which leads up to the place where the caves are. His mind will be well prepared for something marvellous by the strange and beautiful scenery around him. The glen is full of sweet-scented flowers and blossoming trees. The stream hurries along under thickets, which at times conceal its course. The hills approach so closely that at a short distance they seem to unite, as they in fact do at the semicircle along which the caves are. The glen has been and is the haunt of wild beasts. It has been the stronghold of Bhil robbers, but their time is past. The narrow path by which access is gained to the caves reaches them at the 7th cave from the E., and is about 60 ft. high. Thence the path goes on ascending to E. and W. along a narrow ledge, in some places not more than 2 ft. broad, and reaches Cave Number 1, the furthest point on the E. This is a Vihara 110 ft. in perpendicular height above the ravine. There are 2 side chapels, one at either end of the verandah, which is 64 ft. long. In front are 6 pillars and 2 pilasters. Mr. Burgess assigns this cave to the 7th century. The façade is richly decorated with sculptured processions of elephants, horses, and people. On the S. frieze of the portico is a very spirited representation of a wild buffalo hunt. The hunters are mounted and armed with bows and arrows. The door jambs are embellished with male and female figures in amatory attitudes. The great hall or central chamber is 64 ft. sq., and has 20 pillars 13 ft. 6 in. high. The capital of one on the S. side is remarkable for 4 bodies of deer with only one head, which suits each body according to the position from which you look at it. There are remains of splendid paintings in oil on the walls of this cave. The colours are really beautiful and well applied. Remark on the rt. hand side of the back wall a very Chinese-looking figure of a youth with a perfectly white skin. Remark also 4 pictures of a group of 4 figures, which Mr. Fergusson has pronounced to be very probably Khusrau and Shirin and 2 attendants. Khusrau II., or Khusrau Parviz; whose loves with Shirin are the subject of some of the most famous Persian poetry; reigned from A.D. 591 to 628, when he was put to death by his son, Kubad Shiruyah or Siroes. This king of Persia received an embassy from a king of the Dakhan, in whose territory were the Caves of Ajanta, and it is thought that when the embassy returned the king sent with it Persian painters who executed these designs. The king, a large fair man with all the look of a voluptuary, and dressed in Eastern robes with a strange high loose cap, something like the red nightcap which used to be worn in England, holds a broad shallow cup, into which a beautiful girl, supposed to be Shirin, is pouring wine from a vase of classic character. In another tableau the king in royal state is receiving and apparently sending back the embassy from the Indian prince. There is a sort of fillet worn by Khusrau, which resembles that exhibited on the patera in Paris, which displays an undoubted representation of Khusrau. In the shrine Buddha is seated in the teaching attitude. There are 4 cells in the back wall besides the shrine and 5 in each side wall. The paintings in this cave, as that in Numbers 2 and 16, are, in Mr. Burgess's opinion, quite equal in colour and grouping to those at Pompeii.

Number 2, a Vihara cave. There are 2 chapels to the verandah, which is 46 ft. 4 in. long by 9 ft. 6 in. broad. There are 4 pillars and 2 demi-pillars with cushioned capitals and fluted shafts. Observe in ceiling near the S. chapel 2

figures of men with striped socks. One holds a beautifully-shaped *amphora* and a flattish cup in his hand. The flowers in the ceiling are particularly beautiful. Remark especially the lovely blue colour. Inside the side chapels in the back wall are very remarkable Italian-looking female figures. The middle one of one of the 4 groups has quite the look of a Madonna, and all resemble the Italian paintings of the early part of the 14th century. The central room is 48 ft. sq., or, more exactly, 47 ft. 11 in. deep by 48 ft. 3 in. wide and 11 ft. 5 in. high. It has 5 cells on each side. Buddha holds the little finger of his l. hand with the thumb and fore-finger of the rt. His face is stained white with the dung of bats. The Muslims seem not to have generally destroyed the noses here as they have at Elura. In the centre of Buddha's throne is the Wheel of the Law between 2 deer. The chapel in the back wall on the rt. of the shrine has 2 figures, which are either the patron and patroness or Indra and Indrani. In the l. hand top corner is a very remarkable group, to all appearance a woman teaching her child to pray, and resembling a famous European picture. On the frieze below is a rain-fight, and figures boxing and wrestling, with musicians and a president. The Italian-looking figures of fair women are many of them nude to the waist. The chapel on the l. has 2 male figures with head-dresses like wings of an enormous size, and all hanging on the l. shoulder.

Number 3 Cave is a small Vihara higher up in the rock, quite unfinished and difficult of access. The verandah is 29 ft. by 7 ft.

Number 4 Cave is a large Vihara. The verandah is 86 ft. long by 11½ in. broad and 16 ft. high. The great hall is 86 ft. deep, the front aisle being 94 ft. long, and the back aisle is 89 ft. 6 in. There are 8 pillars in the verandah, octagonal with plain brackets, 28 in the central hall, all octagonal except 2 in front of the shrine, which are square. There is a very remarkable representation of the Litany, as it is called by Mr. Burgess, on the rt. of the door, consisting of 2 sets of 4 groups each. The 1st group on the l. consists of 2 figures flying from an infuriated elephant; the 2nd group is of 2 figures flying from a lion; the 3rd exhibits 2 figures flying from a man with a sword, who is stabbing one in the stomach; the 4th group is intended to represent the perils of the sea, but is so much obliterated that one can make out nothing but some figures in a vessel. The 1st group on the rt. hand represents the perils of fire; the 2nd group is a pair of figures threatened by a cobra; the 3rd group is of 2 figures, 1 of which holds the other by a rope, which passes over his shoulder and is fastened round his wrist, this represents Captivity; the 4th group represents Kali, the Hindu goddess of destruction, uplifting her skeleton arms to seize a victim. This represents Famine. This cave is almost unapproachable, owing to the number of bats that fly round and round in myriads. The stench is dreadful.

Number 5 Cave is a Vihara, only just commenced.

Number 6 Cave is a Vihara, remarkable for having 2 storeys, of which there is here only one other example, viz. *Cave Number 25*. The hall is 53 ft. 4 in. wide, and 54 ft. 10 in. deep. The front and back aisles are each 71 ft. long. There were originally 16 pillars in the central hall, of which only 7 remain; 5 have fallen in the last 50 years. The pillars are 13 ft. high. They are octagonal for ⅓ of their height, and 16-sided for the remainder. The staircase to the upper storey is broken away to the height of 13 ft., so that that storey is almost inaccessible. The Bhil freebooters for a long time inhabited this cave and damaged it excessively.

Number 7 Cave is a Vihara. It has a large verandah 62 ft. 10 in. long, and 13 ft. 7 in. broad, with cells at the back like the Katak Caves. Two porches of 2 pillars each project from the front line of the verandah, resembling those at Elephanta and the Duma Lena, and are probably of the same date. There is also a chapel with 2 pillars at either end. In the vestibule are 4 rows of 5 cross-legged figures seated on the lotus, with a lotus between each pair, and 1 row of studying Buddhas. On the rt. are 2 similar sculptures of repeated figures of Buddha seated and standing. Within the sanctuary on either side are 2 large figures, and 1 small and 2 chauri bearers. On the step are 16 cross-legged figures, 8 on either side.

Number 8 Cave is a Vihara, 32 ft. 4 in. wide, by 17 ft. deep. It contains no sculptures, and is devoid of interest.

Number 9 Cave is a Daghopa 45 ft. by 23 ft. It has 21 pillars surrounding the nave, of which 8 are broken. But there are 2 pillars at the entrance of a different shape, and more rich in detail. There are 3 inscriptions, probably of the 2nd cent. A.D.

Number 10 Cave is also a Daghopa, 95 ft. 6 in. deep, and 41 ft. 6 in. wide. The statue of Buddha is quite separated from the wall. There are 39 pillars surrounding the nave, of which 13 are fallen. They are plain octagons without capital or base, and have been stuccoed and painted. The roof is ribbed. The ribbing in the aisles being of stone and in the nave of wood, though now only the fastening pins, and the footings for one or two of the ribs are left. The Daghopa is plain and solid, with only the square capital or Tee on the top. Mr. Fergusson thinks it was once richly ornamented in wood and had 3 umbrellas as at *Karli*. The whole of this cave has been painted, though now only some figures of Buddha and his disciples are left. On the interior face of the cave, and very high up, is an inscription in the pure *Lat* character, which would give an antiquity of from 200 to 100 B.C.

Number 11 Cave is only 37 ft. wide by 28 ft. 6 in. deep. It resembles the next cave *Number 12*, but has 4 pillars in the centre supporting the roof, being probably one of the earliest instances of the introduction of pillars for such a purpose. The sanctuary is 12 ft. wide, by 19½ ft. deep. On the walls are antelopes, lions, and a boy praying, sculptured in the very best style of art, and evidently coeval with the Ganesha Gumpā at Katak. The walls have been stuccoed and painted, but the paintings are now scarcely distinguishable.

Number 12 Cave is one of the most ancient and plainest of the series, having no pillars, sanctuary, or visible object of worship. The only ornament consists in 7 horse-shoe canopies on each side, 4 over the doors of the cells, the other 3 merely ornamental. These canopies are very similar to those at Katak, and under them is a reeded string course. This cave is 36 ft. 7 in. sq. There is an inscription on the inner wall in a character slightly modified from that on the *Luts*, and written probably early in the Christian era, if not before it.

Number 13 is a small cave with 2 cells.

Number 14 is a large unfinished Vihara, which is reached by a rough ascent over the rock. Only the pillars of the verandah are finished. Within, the 1st line of pillars are hewn out, but left in the rough.

Number 15 is a plain square cave, formerly filled up with mud and debris. The verandah is 30 ft. long by 6½ ft. wide, but the front has fallen away. The hall inside is 34 ft. sq.

Number 16 and *Number 17* are the 2 finest Viharas of the series. On the external faces are 2 long inscriptions. These caves date probably about the 4th cent. A.D. *Number 16* is 66 ft. 3 in. wide, and 65 ft. 3 in. deep, exclusive of the sanctuary. Around the centre hall are 20 pillars, painted with something like a Roman scroll, alternating with wreaths of flowers. The paintings in the great hall are very interesting, representing battles. The soldiers hold short swords like the Nipalese knife, and oblong shields round like the shield of Achilles. The architectural details are more elegant than in any cave in the series. *Number 17* is called the Zodiac cave, and resembles 16, except that it is not so lofty, and the details are not so elegant. The paintings, however, are more perfect. It is 63 ft. 9 in. by 62 ft. deep, and has 20 pillars. On the rt. hand wall, as you enter, a procession is painted. Three elephants are issuing from a gateway, 1 black, 1 white, and 1 red. Flags and umbrellas are borne before them, and men with spears and swords make up the train. On the back wall is a hunting scene, in which a maned lion is a prominent figure. In the verandah are some curious paintings, especially a circular one, with 8 compartments. Over the door are 8 sitting figures, of which 4 are black, and the rest each a degree fairer, the 8th being quite white and wearing a crown. Mr. Fergusson pronounces these paintings to be decidedly superior to the style of Europe during the age in which they were executed.

Number 18 is merely a porch with 2 pillars.

Number 19 is a Chaitya cave. It is only 46 ft. by 24 wide, but it is remarkable for the beauty and completeness of its details. 17 richly ornamented

pillars surround the nave, and above them a band with niches containing Buddha, standing and sitting alternately. The roof is ribbed in stone. The Daghopa has 3 stone umbrellas, rising till they touch the roof; in front is a standing figure of Buddha.

Number 20 is a Vihara 28 ft. 2 in. wide, by 25 ft. 4 in. deep, with 2 cells on each side. The roof is supported by advancing the sanctuary 7 ft. into the hall, with 2 columns in antis in front. By this arrangement an external colonnade is dispensed with.

Leaving *Number 20* the traveller proceeds some distance along a narrow and dangerous ledge, and the heat radiating from the rock in the hot weather is terrific.

Number 21, which is reached after this passage, is 51 ft. deep, by 51 ft. wide. The paintings are almost obliterated, except on the l. hand as you enter, where there is a large black Buddha with red hair, attended by black slaves, also a number of females fair as Europeans.

Number 22 is but 16½ ft. sq., and has only 2 rough-hewn pillars in front of the sanctuary, in which is a seated figure of Buddha, with the legs down; and *Number 23* is an unfinished Vihara with 12 pillars and without paintings. It is 50 ft. 5 in. by 51 ft. 8 in.

Number 24 is partially filled with mud, and is unfinished; but the details, where completed, are so rich as to leave no doubt that this would have been one of the finest caves had the design been fully carried out. Only one pillar has been completely sculptured; it was intended that there should be 20. The centre hall would have been 43 ft. sq., and the whole cave 73 ft. 3 in. wide, and 75 ft. deep. The verandah is finished, but of the 6 columns 5 are broken. In this cave [the whole process of excavation may be traced. It appears that the rough work was done with the pickaxe, and that stones were not regularly quarried, but the rock of amygdaloidal trap was first cleared roughly with the pick, and then carved into pillars, &c.

Number 25 is a small rude Vihara with 2 pillars,

Number 26 is a vaulted or Chaitya cave, and perhaps the most modern of the series. It resembles *Number 19*, but is much larger, being 67 ft. 10 in. long and 36 ft. 3 in. wide. The width of the nave is 17 ft. 7 in. Its sculptures are more numerous and minute than any other. The Buddha in front of the Daghopa is seated with his feet down. The walls are covered with sculptures of Buddha and disciples. In the S. aisle is a figure 23 ft. 3 in. long, reclining all its length, in which attitude Buddhists prepare to receive *nirvanah*, "beatitude." Above are many angels, one of them sounding vigorously a big drum. The fat figures with wigs which serve as brackets have here 4 arms. There are 2 inscriptions on the outside, one under a figure of Buddha on the l. of the entrance; the other much broken, but more distinct, on the rt., in the character of the 6th cent. A.D.

Number 27 is a small square Vihara without pillars, unfinished, the sanctuary being only commenced. The front has completely crumbled away, and there are 2 caves beyond this which have disappeared in the last 20 years, and the ledge having fallen they are quite inaccessible. Several of the Buddhist paintings represent incidents that are related in the popular legends of the life of Buddha. Others delineate domestic manners and customs of singular interest. The dates are obviously diversified, but none are probably later than the 6th cent. of the Christian era.

From Ajanta the traveller will probably like to continue his journey by rail, and if so he must go 30 m. to the rly. stat. at Pachora, on the G. I. P. rly. This distance he will have to do in a country cart, and it will take him at least 15 hours. The rd. is excessively rough, but once at Pachora he can either go S. to Bombay or E. to Jabalpur, whence he may either visit Calcutta or go N. to Delhi in the Panjab.

From "Cotton in India and elsewhere," by J. FORBES ROYLE, M.D., F.R.S. (1851), pp. 52-59 :—

In the foregoing notices of the cotton trade of the Ganges we have seen that Bengal and Benares were supplied with cotton from Central India as well as from the Doab and Bundelcund, and that these displaced the cotton which came by sea from Surat, as early as the year 1783, that is, about the very time that the demand was springing up in England. For many years afterwards, or indeed until the conclusion of the Mahratta and Pindarrie wars in 1818, most parts of the above tracts were in too disturbed a state to encourage the peaceful progress of commerce, and therefore cotton did not then travel westwards to Bombay, and also on account of the transit duties to be paid in passing through the several Native States and Jaghire villages. But in addition to the trade to Mirzapore much cotton was taken to the southward and eastward for the extensive manufactures of the Northern Circars. Indeed, we find a Committee at Fort St. George in 1790 remarking "with concern that the raw material for the coast investment is procured in a great measure from *foreign countries*," that is, chiefly from Nagpore, "as being best adapted to the coast manufacture, but, being of a higher price, is mixed by the weavers with cotton the produce of the Circars."

This trade has in a great measure ceased, and that to the Ganges has greatly diminished; but that to the westward, from the security of property, the shorter distance, and the removal of some of the transit duties, has greatly increased. Little of this cotton is produced within the British territories, but abundance in those of the Rajah of Nagpore and of the Nizam of Hyderabad.

The only account which we have seen of the province of Nagpore is in the notes communicated by Major Wilkinson, Resident at that capital, to the then Private Secretary of Lord Ellenborough, dated 2nd June 1842. Major Wilkinson states that there are two extensive cotton marts in the territory of His Highness the Rajah of Nagpore, viz., Hingunghat and Arvee, the former fifty and the latter seventy miles from the capital. The cotton brought to the Hingunghat market is grown in districts which lie to the south-west of Nagpore, and separated from the territories of the Nizam by the Wurda river. That which is taken to the Arvee market is grown in districts to the westward of Nagpore, and on the upper part of the same river. Some cotton is also brought there from the contiguous districts of Berar. The cotton collected at Arvee is taken to Mirzapore and to Bombay, as is that which is collected at Oomrowtee. The cotton from Hingunghat is taken to Mirzapore, where it is called Nagpore cotton. The Arvee cotton is called Oomrowtee, both at Bombay and Mirzapore, in consequence of following nearly the same route. "A small quantity of Hingunghat cotton was one year taken to Bombay, where it fetched a higher price than any of the Berar cottons. The Hingunghat or Nagpore cotton sells at a higher price at Mirzapore than cotton brought from any other part of India except Hindeenugger, which is near Saugur." The quantity taken to Hingunghat* varied in the season of 1837-38 to that of 1841-42 from about 12,867½ bhojas to 19,146½ bhojas, of which from 600 [? 6,000] to about 7,000 bhojas were taken to Mirzapore, 2,000 to Cuttack, and the remainder retained for home consumption. At Arvee from 6,000 to 9,000 bhojas were collected in 1840-41, the whole of which was taken to Mirzapore. In 1841-42, up to the month of June, 6,000 bhojas had arrived, of which there were taken to Mirzapore 3,300 bhojas, and to Bombay 2,700 bhojas.*

Mr. Mercer, in the journey from Mirzapore to which we have already referred, met the cotton of Nagpore and that of the Nizam's dominions along with that of the Saugur and Nerbudda territories, and, though on the same road, conveyed on bullocks instead of in carts. Of the cotton of Nagpore, mentioned as from Hingunghat, he says of a drove of 900 bullocks, "All the cotton I have seen from that place is of very good quality indeed, and better cleaned than is usual in Indian cottons;" and again, of another drove of 500 bullocks, he observes, "Cotton very good, just the same as all the Nagpore cotton I have seen. It is of fair length and fineness, colour excellent, and if a little better cleaned would certainly equal good

* Three Oomrowtee bhojas are equal to one Bombay candy of 784 lbs.

Mobile or upland Georgia. It has none of the harshness so common in the cottons of the north-western provinces." He mentions afterwards that he had just heard from Mr. Hamilton, a merchant at Mirzapore, that at that place the Hingunghat cotton fetches $1\frac{1}{2}$ rupees more than that of Oomrowtee. When at the latter place Mr. Mercer learnt that the cotton merchants there "account for the superiority of Hingunghat cotton from the care in gathering and growing, and the very superior land in that district." The appearance of the plant, wherever he had seen it, was precisely that of the Oomrowtee plant.

Oomrowtee and Khamgaum are the two great northern marts for cotton, the one being on the east and the other on the western frontier of Berar, in the Nizam's territories. But Oomrowtee, being the largest mart, has its name generally applied to distinguish the cotton of the whole country. The countries of Central India being situated at a distance from the sea-coast, with the worst kind of carriage for so bulky an article as cotton, and yet able to supply large quantities of it, and at a cheap rate, would indicate the presence of improved culture and careful cleaning, or a favourable state of fiscal regulations. None of these seem to be the case, and therefore we must infer a very favourable soil and climate, with the absence of other more profitable objects of culture. As we propose examining these questions in a subsequent part of this essay, we shall at present inquire only into the state in which the cotton of the Nizam's territory enters the market, in order to see how it influences, or is influenced by, the trade of other countries.

Mr. Mercer, in 1843, when he examined the Oomrowtee cotton at Mirzapore, found that "the samples, though leafy, were pretty free from other impurity, and of very good colour, fine, soft, and, though uneven, of pretty good length and strength." On his journey he mentions droves of bullocks carrying Oomrowtee cotton to Mirzapore. Between Ellichpore and Oomrowtee he found cotton to be the chief object of culture, and the mode of cultivation approaching that of America; for instance, the cotton planted without admixture, and sown in rows of a cubit, or a little less, in width, thinned to a single stalk in a place, and, according to the statement of the ryots, occasionally ploughed between." But "in regard to gathering they seem generally very careless and slovenly, allowing a great deal to waste and taking little pains to keep it clean. They store it in large wattle baskets without covering, in their stack-yards amidst all their other crops, collecting a due share of all the chaff, trash, and broken leaves that necessarily abound there." "In many of the larger bazaar villages I saw immense heaps of it lying without shelter, merely enclosed around, exposed to innumerable clouds of dust, and sometimes to a shower of rain; near these heaps sat dozens of people running the churka, making the vile masses still more filthy."

Captain Dorin, Supt. of Roads in Berar, in a report dated July 1848, says—"The reason that the cotton is exported to Mirzapore in preference to Bombay, though the land journey is much longer, is to avoid the extremely heavy and arbitrary duties levied upon it and every other species of merchandise passing through the Nizam's territories, and which are avoided in going to Mirzapore, as the road crosses the frontier about 30 miles from Oomrowtee and enters the Nagpore country."

With respect to any care bestowed in picking and cleaning, he says, "An advance is always made, and from this advance arises one of the great evils of the cotton trade. The money having been advanced by the purchasers, who buy the cotton in large quantities for exportation, they are obliged to take whatever produce is brought to them, or lose their money; and the Mahajuns, who are the principal cleaners of the cotton, and the ryots, who cultivate it, knowing this, mix with the clean and good cotton all sorts of rubbish and the bad and inferior cotton of the last year, which admixture can never be again entirely separated; and this it is that makes the Berar cotton so much inferior in the market price to the Surat cotton, to which it is, when properly cultivated and gathered, hardly inferior. The cultivators again, when they have received advances, are frequently not allowed to gather the cotton in small quantities, as the pods ripen, but are obliged to wait until the crops have been assessed, and by this time much of the cotton is

frequently spoiled by the pods falling off, and dry leaves, &c., getting mixed with them."

Captain Meadows Taylor, in a valuable report from Shorapore, a principality subordinate to the Nizam, and situated in the south-west of Berar, where he is stationed on special duty, writes, in July 1848: "The only way to avoid this, and to pick the cotton clear of these incumbrances and dirt, would be to gather it early, and when the leaves and seed-vessels are not quite withered; this, however, is not attended to, nor, indeed, unless the people could be assured of a constant demand and possibly superior price, under the local purchasers and directions of capitalists from Bombay, would they alter their present careless mode of proceeding. The cultivators seem, however, to have little inducement to take greater care of or to grow more cotton." Captain Dorin further says:—"The cotton cultivation has of late years fallen off very considerably, and whenever I have asked the ryots why land which I had seen under cotton cultivation was planted with jowaree or other grain they have invariably replied that the cotton cultivation did not now pay them, if they cultivated it properly, allowing the land to lie fallow every second or third year; and the restrictions as to gathering it, and the necessity they were under of selling it to the people who had made them advances, together with the high arbitrary duties, and the difficulty of transporting it, when gathered, were so oppressive, that they preferred cultivating any other crop. Should, however, these restrictions be removed, it would be difficult to say to what extent cotton might not be cultivated in Berar."

Captain Reynolds, who acted as revenue officer in Berar for 10 years, and was chiefly stationed at Hingolee, represents, in his evidence before the Cotton Committee of the House of Commons, the transit duties as the greatest impediment to improvement:—"The contractors of the transit duties made whatever demands they pleased;" besides these there were "many single villages held by jageerdars, who had an *imperium in imperio*, and again collected a different rate of duty from that claimed by the revenue contractors. You would suppose that the cotton would naturally take the route indicated by the main road; the route is not dependent upon your having made a carriage road, but upon the route defined by the Hoondakars, who have contracted for the duties. Numerous complaints used to be made to him of the vexatious delay on the part of the collectors of the transit duties, and on the part of the jageerdars, who would very summarily overthrow a dozen loads of produce and keep them in pawn till the duty that they demand had been paid by the carrier." In fact, if it was not for the system of Hoondakaree, fully explained by Capt. Reynolds (v. H. of C. Report, pp. 37 and 416), by which arrangements are made for the conveyance of goods to their destination, including one with the contractors of transit duties, even the present degree of trade could not take place. But everything tends to keep the cultivator in subjection to the purchaser of his cotton.

Captain M. Taylor writes that in the country south of the Kistnah there are probably 70,000 beegahs cultivated with cotton. The cotton of the more southern and south-western parts of this tract goes principally to Coompta on the coast, via Bellary, Dharwar, &c., along with the produce of the Bellary, Dharwar, and other districts of the Southern Mahratta Country. It is known as Coompta cotton in the Bombay market. But a portion of the cotton of the south of the Kistnah, as of Raichore, &c., is sent north and north-east to those districts of Telingana, (that is, the Northern Circars on the coast of the Bay of Bengal), where cotton is not cultivated, but where it is required for local manufacturing consumption. A considerable quantity is required for the Gudwall district, where there are manufactures to a large extent, and for those districts further to the eastward which border upon Kurnool. Though some of the cotton of these districts is conveyed in carts, the greater part of it is so on bullocks, which he considers one of the greatest impediments to the extension of the commerce. As a cart-road has been made down the Ghauts to Coompta, it is probable that some portion of the cotton of the interior may get an easier exit to the coast; but Captain Taylor advocates the making of a direct cart-road to Viziadroog, where, he says, there is a port large

enough to admit large ships, which might come in and take the cotton direct to Europe, instead of its going first to Bombay.

In reference to the extension of culture, Captain Taylor says, "I am satisfied, by frequent discussions with the people of all classes, that provided there was a ready market for cotton, and the price was regularly maintained, by a steady demand, to a remunerative rate, the cultivation of it would be preferred to almost any other. The lands at present neglected would be improved, those which are waste broken up, and Jowaree (*Sorghum vulgare*, the Durra of the Arabs), which is the other great staple of the district, to some extent superseded by cotton, to secure a return which would be regular and permanent, and which, in reference to its intrinsic value, would not be liable to any great fluctuation of price. These causes would, I am strongly of opinion, give a gradual increase of from 30 to 50 per cent. on the present cultivation, if not more."

Captain Taylor further states that the country north of the Bheema supplies the marts of Sholapore, of Barsee, and of Wyrag. The greater portion of what is known as Barsee cotton in the Bombay market is the produce of these districts north of the Bheema.

Oomrowtee is described by Captain Reynolds (Report, p. 37) as a place of trade "the most flourishing in that part of India. It swarms with Marwaree firms, and most of the influential Sahookars (bankers) of Upper India, as well as of Bombay, have correspondents or branch houses there. The celebrated Dhunraz made Oomrowtee his head-quarters, and was extensively engaged in cotton speculations. His subordinates were established in every pergunnah in the Berar valley, and they made advances to the cultivators, or assisted them in paying their kists (portions of rent), on agreement that the produce of their cotton-fields should be placed at the disposal of their employer. Oomrowtee was the depôt for the raw cotton; there were large warehouses for storing it as it arrived from the country, and it was cleared from the seed, packed, and despatched to the coast, either by way of Mirzapore to Calcutta, or direct to Bombay. The price of cotton at this mart is about 54 rupees for 750 lbs. Mr. Mercer states that he learned from the Brinjarras that they get about 7 rupees per bullock for carriage from Hingunghat and Oomrowtee to Mirzapore, but that the rate varies, according to the season, from 5 to 9 rupees. A bullock-load is about 240 lbs., Mr. Mercer says 4 maunds.

The price of cotton at Khamgaum, which is the most westerly of the two great marts of Berar, is said to vary from 15 to 20, rising sometimes even to 30 Hyderabad rupees, for a pullah of 240 pounds. The whole of the cotton of Western Berar and of Berar Balaghaut and a portion of that of Eastern Berar is exported by this mart, via Ahmednugger, to Bombay, which is 300 miles distant, at an expense of from 5 to 8 rupees the pullah, though higher rates are occasionally demanded. The carriage is chiefly in the hands of the Brinjarras, the great carriers of Central India. Mr. Fenwick, of Khamgaum, late of the Nizam's military service, states that carts have of late come much into vogue, and are preferred, on account of their travelling three and four times the distance a day that Brinjarra bullocks can. Perhaps a third or more of the cotton from Khamgaum is now carried on carts. But a greater difficulty is experienced from the uncertainty of the seasons, too dry a season not allowing the bullocks to travel for want of fodder, while unseasonable wet inundates the country, and renders the roads impassable. But, even with these difficulties, Mr. Fenwick states that about 28,000,000 of pounds of cotton were exported from the westward of Berar, besides what was sent to Mirzapore from Oomrowtee.

In Shorapore, which is the most southern of the districts usually included within the territories of the Nizam, the price is about 53 rupees for a candy of 784 lbs. This, Captain Taylor states, is carried either in carts to Sholapore, and from thence to Panwell, incurring a further expense of Rs. 14-10 as., and then costing Rs. 67½, at a time when Coompta and Barsee cottons, which are of the same quality, were selling at Bombay for 80 rupees the candy; or it is sent on bullocks to Sunkeshwur, near Kolapore, and thence to Rajapore, in the Concan, where it is shipped to Bombay; but the expense is considerably greater, and the

adventure is repaid by the return load of kirana, or groceries, in which are included spices, &c.

Nagpore and Berar.—The tracts of country most favourable to the growth of cotton belong chiefly to the Nizam of Hyderabad and to the Rajah of Nagpore. The valley of Berar is considered the most suitable, though much excellent cotton is also produced in the Nagpore country, and is that known by the name of Hingunghat cotton. The quantity which could be cultivated is so much greater than what is now produced that it becomes both interesting and important to ascertain what are the peculiarities of soil and of climate which cause it to produce this superior cotton, and to inquire whether these are such as to render it probable that American cotton could also be produced in the same regions. Before proceeding, it cannot but strike some of our readers that the fact of good cotton being produced at a distance of 300 or 400 miles from the sea militates against the theory of a saline atmosphere being necessary to the production of good cotton, and also apparently against our inference that a certain degree of atmospheric moisture is essential. For it may be supposed that the dryness of the air will be greater in proportion to distance from the coast, especially as we have seen that drought was the chief cause of failure with American cotton in the Doab and Bundelcund. But this apparent exception only confirms the rule which we have deduced, and which is also confirmed by American cotton being grown in the dry climate of Egypt only by the aid of irrigation.

The range of mountains which form the northern boundary of the tract in question seems to arrest the air loaded with vapour from southern regions, and to cause its deposition on their sides, and thus the countries in their vicinity are kept in a moister state than would otherwise be the case. Instead of theory, it is more satisfactory for our present purpose to refer to the observations of one of the American planters, who, on being transferred from Bengal, marched across the country in question from Mirzapore to Bombay, and made it his special object to observe its fitness for the growth of cotton. Mr. Mercer first examined this cotton at Mirzapore, and thought it better than fair American. During his progress he met with immense droves of bullocks laden with the cotton of Oomrowtee and with that from Hingunghat. The latter he describes as, "like all the Nagpore cotton he had seen, of fair length and fineness, colour excellent, and, if a little better cleaned, would certainly equal good Mobile or Upland Georgian. It has none of the harshness so common to the cottons of the north-western provinces." This indicates moisture of climate. In the Nerbudda valley Mr. Mercer states (p. 311) that they complain of excess of moisture. It is probably moderate in the valleys of Berar.

§ 21. CULTURE OF COTTON IN THE NAGPORE TERRITORIES.

The extensive tracts of country subject to the Rajah of Nagpore occupy that part of Central India which forms a part of ancient Berar, and extends from 18° 40' to 20° 40' of N. lat., and from 78° 20' to 83° of E. long. The average length and breadth is considered to be about 300 miles, and the area was computed by the late Col. Blacker to be about 70,000 square miles. This territory is bounded on the north by the Saugur and Nerbudda districts; on the west by the Warda and Wyne Gunga rivers, which separate it from the Nizam's territories, which bound those of Nagpore also on the south-west to the south-east, where there are many uncivilized tribes. On the east the Mahanuddy forms the boundary in many parts, and there lie the districts of Sirgoojah and Sumbhulpore, with ranges of hills and tracts of forest-land. The general aspect of the country is irregularly mountainous and woody. But in the vicinity of Nagpore, between the Warda and Wyne Gunga rivers, as well as in Chuteesgurrh, there are extensive plains which are calculated to be elevated about 1,100 feet above the level of the sea. To the north the Puchmarce Hills rise to an elevation of 4,200 feet. The soil in the open country and valleys of the hilly parts is almost invariably black loam, which when moist is muddy, and when dry cracks in all directions. In the hilly parts of the country

and in some parts of Chuteesgurrh, the soil is red. The rivers are mostly navigable in the rains, and a few during a part of the cold weather. Many parts of the country, especially to the south and east, are covered with long grass and dense and unhealthy jungles. There is, therefore, probably considerable moisture of climate, though the quantity of rain which falls is not considerable, having amounted to 36½ inches on an average of five years at the Residency. Tanks are numerous, formed chiefly by throwing an embankment faced with masonry across the gorge of any valley favourably situated, by which the water falling or flowing into the valley is collected. Many parts of this are highly cultivated and extremely fertile, producing both wheat and rice, sugar-cane and cotton.

The climate is naturally divided into three seasons, viz., the hot, rainy, and cold. The hot season extends from the middle of March to about the 10th of June, the greatest intensity of heat occurring from the latter end of April till the first fall of rain, which it is said almost invariably occurs about the 4th of June. The temperature, even in the house, is as high as from 96° to 104° Fahr. from 12 o'clock to 4 p.m., but exposed outside the thermometer has been observed to rise to 140°. After the first showers of the rainy season there is generally an interval of some days of fine weather before the monsoon is regularly established. The greatest quantity "of rain falls in August and September, the average for the year being 40 inches; but in the year 1838 it was less than 22 inches."

"The coldest season commences about the 20th of October, and continues till the middle of March. During this period there is a considerable diurnal range of temperature, which is often found to be prejudicial to those who are weak in constitution. There are usually heavy dews, which are highly beneficial for agricultural purposes, and in the early part of the season fogs prevail, more particularly along the ravines and nullahs, where moisture exists to a greater extent than in the open plains. The lowest temperature observed outside at sunrise has been 36° Fahr., and the highest 110°, from noon to 3 p.m., but lower temperatures must occur at the surface of the ground, as hoar frost is occasionally seen, and thin pellicles of ice on small pools, from the free radiation which occurs on clear nights." (*Madras Medical Reports*.)

The author has been unable to find any detailed account of the culture of cotton in Nagpore, and he has not seen any answers to the queries circulated by the Court of Directors in 1847. There is no doubt that much of the soil is suitable and the climate favourable, and we know that there are two principal cotton-marts within the Nagpore territories. Major Wilkinson has stated that the cotton brought to the Hingunghat market is grown in districts which lie to the south-west of Nagpore, while that taken to Arvee is grown in districts westward of Nagpore, both tracts being different parts of the valley of the Wurda. Lieut. Munro, of H.M. 39th Regt., himself a good observer and naturalist, mentions the banks of the Wurda as the parts which are chiefly cultivated with cotton at present, but that in making a tour with the Resident through the province of Chuteesgurrh he had seen many places apparently well adapted for the cultivation of cotton. We have seen that Nagpore cotton is esteemed at Mirzapore, and that the portion taken westward passes at Bombay as Oomrowtee. Mr. Mercer when at Oomrowtee was informed by native merchants that they ascribed the superiority of the Nagpore cotton to the "very superior land in that district," also to "care in growing and gathering." Mr. Macleod, then in charge of the Saugur and Nerbudda territories, says (*v. Trans. Agric. Soc.*, vol. vii., p. 143), "In Berar (the Nagpore country) the black basalt soil yields two crops of cotton a year, the rubbee, or spring harvest, being the most esteemed." Mr. Mercer's observation that the cotton is devoid of the harshness which characterizes the cotton of North-western India, and that it is of fair length and fineness, sufficiently indicates the suitability—indeed, the moderate moisture—of the climate, for we do not find that cotton ever attains these qualities unless in a moist equable climate. It was proposed at one time to establish some sawgins in the great cotton marts; but these would be of little real benefit, as we shall afterwards see unless the cotton has first been cleanly picked.

The distance of Nagpore in the interior is perhaps unfavourable ; but the road to Mirzapore being available for carts only requires that those within the Nagpore territories should be made so, for if the journey is commenced on bullocks it will probably be so continued notwithstanding all its inconveniences. A branch from the proposed great railway of the Bengal Presidency would easily convey the coal, corn, and cotton of the Nerbudda valley and of the Nagpore territories to the banks of the Ganges. It may also be a question whether the Mahanuddy cannot be made available, by some improved methods of river navigation, for the conveyance of the produce of these central regions to the Bay of Bengal.

In conclusion, it may be stated that it would be extremely important to ascertain whether many parts of the country are not well suited for the growth of American cotton, which is so much more esteemed than that of India by Lancashire spinners. But the indigenous cotton itself is, no doubt, susceptible of improvement, as both soil and climate are favourable to its growth. Improved culture would, therefore, have every advantage. The cotton could certainly be sent in a better state to market. His Highness the Rajah of Nagpore might probably be induced to institute such a course of useful investigation, and to employ one of the planters when relieved from his engagements with the Indian Government.

§ 22. CULTURE OF COTTON IN THE TERRITORIES OF THE NIZAM.

The Hyderabad territories, or those of the Nizam, which include a part of the ancient province so often referred to as Berar, extend between 15° and $21^{\circ} 30'$ of N. latitude, and 75° and $81^{\circ} 30'$ of E. longitude ; bounded on the east by Nagpore, and on the north by Meikwar and a part of Candeish, on the west by the Bombay territories, and on the south by the Ceded Districts, that is, by Bellary, Kurnool, Guntoor. Their average length is estimated at 320 miles, and their breadth about 70. The general surface of the country is irregularly hilly, being elevated from 1,800 to 2,000 feet above the level of the sea, with bare rocky hills of granite common throughout all parts of the province, in some places pervaded by dykes of basalt. The soil, in general, between the granitic hills is extremely fertile, and when capable of being irrigated, as on the alluvial banks of the rivers, produces rich crops of rice, &c. Dr. Voysey says the only parts of the country which are entitled to the name of plains are those in the neighbourhood of the rivers. The outline of the basaltic trap hills is smooth and rather flattened. They are covered with long grass to their summits, and their course is usually the same with that of the granite they cover. The lakes and tanks are innumerable, all are artificial, and are found only in the granitic and sandstone country. They are usually formed by uniting two projecting points of low hills. "They are less frequent in the sandstone country, and the unirrigated cultivation is accordingly more abundant." Tanks are rarely seen in the basaltic trap.

The fertility of the soil which composes the cultivated districts of the granitic parts of this province depends greatly on the facility with which the rock of which they are formed becomes decomposed. The soil is siliceous, and "it may be said that usually the spontaneous fertility is in the inverse ratio of height above the level of the sea."

A garden soil (sp. gr. 1.70) at Secunderabad contained the following ingredients in 480 grains :—

Water of absorption	10	grs.
Stones consisting of quartz and felspar...	255	"
Vegetable fibre ...	2	"
Siliceous sand ...	154	"
	421	grs.

The country is described as being generally thinly wooded, without any jungles of any great extent, and no forest trees except in the northern parts and the little known north-eastern districts, where there is the Nirmul jungle. This is about 40 miles in breadth. But extensive clumps of wild date and of palmyra trees are to be found everywhere : both of these yield toddy and sugar.

The rivers are numerous and add greatly to the fertility of the valleys through which they flow. The Poorna flows through the rich valley of Berar, and unites

with the Taptee. The Wurda runs along the western boundary and joins the Godavery. The Pyne Gungah takes its rise in the north-western part of the country, and flowing eastward joins the Wurda. The Godavery, the most considerable river of southern India, takes its rise in the mountainous parts of Aurungabad, and flowing eastward and south-eastward falls into the Bay of Bengal. The Kistnah also rises in the western ghats, takes a directly easterly course, is joined by the Beema and Toombuddra, as well as by other small streams, and enters the sea at Masulipatam. These rivers require to be noticed, as it is in the valleys through which they flow that the most favourable sites for cotton culture are found.

The city of Hyderabad is elevated 1,672 feet: the observations on climate have been chiefly made at the cantonment of Secunderabad, which is ten miles to the north. "The south-west monsoon commences generally at Secunderabad in the beginning of June, and continues, at intervals, till about the middle of October. During November and December the sky is frequently cloudy, and sometimes in the north-east monsoon a considerable quantity of rain falls. From the beginning of January to the end of May the sky is generally clear and the weather dry. Dews are not unfrequent in January and the early part of February; and in some years, light showers of rain occur during these months. The annual fall of rain is estimated at thirty-two inches; but in years when the monsoon fails it does not amount to half that quantity."

Major Oliphant, one of the Directors of the East India Company, and well acquainted with the Nizam's territories, has favoured the author with the following notice of the climate of Hyderabad, which, he says, is decidedly a dry one:—"The rains usually commence about the 4th of June, during which month they are in most years light. In July more rain falls, chiefly in the night, alternating with fine days; it is rare to have more than two days' consecutive rain. August continues a pleasant month with rain at nights; September also. October is a drier month; but there is no dry hot weather till April. Sometimes there is rain in the end of December, being a portion of the N.E. monsoon. December and January are decidedly cold, and the climate delicious. March, April, and May are steady hot and dry months. Plenty of dew in the cold season. Wet fogs often occur in February and March. All about Hyderabad proper the soil is red, except in the beds of tanks where the alluvial deposits take place. The cotton districts are in Berar."

At Bolaram, which is five miles further north and twelve miles from Hyderabad, the annual fall of rain is from 25 to 30 inches, occurring principally between June and October, though 4 or 5 inches have been known to fall in December during the north-east monsoon.

Jaulnah, which is near Aurungabad, is distant about 270 miles north-west from Hyderabad, and in a direct line not more than 210 miles from the sea on the western coast. The surrounding country is hilly, the soil black cotton ground interspersed with patches of red ground. The climate from March to June is hot; but the mornings are comparatively cool, the prevailing winds being westerly. The rainy season continues from July to October. The average fall is 32 inches. From November to February the weather is cool and dry, the temperature ranging from 40° to 80°, with occasional ice on the ground and copious dews.

Capt. Reynolds, well acquainted with the valley of Berar (*v. II. of C.'s Report*, p. 413), describes it (p. 37) "as bounded on the north by the Vindhya range, which divides it from Bhopal and the Nerbuda provinces; on the south by the Hingolie and Aurungabad districts of the Nizam's country; on the east by the Nagpore state, and on the south by Candeish, and as peculiarly suitable to the cultivation of cotton. It is very well watered by a branch of the Taptee river, running from the east to west, with numerous tributary streamlets from the north and south."

Again, he states that the "portion of the country denominated the Berar valley, which consists of an alluvial soil of great depth, is more intersected with rivers than, I suppose, any part of India, Bengal proper excepted; the ramifications of the streams in this valley are most astonishing. There is no part of India so well irrigated, and it is admirably adapted for the cultivation of cotton and dry grains." Also, that "it is a dead flat from the banks of the Wurda, between Oomrowee and

Nagpore all the way down to the range of the mountains that divide the Nizam's territories from Candeish." On ascending the ghaut at Lakunwara, on the road between Oomrowtee and Aurungabad, "we get into a comparatively hard stratum of soil."

He also states (p. 413) that the space of country included between the river Pynegunga and the river Godavery consists, almost the whole of it, of an alluvial soil, and is adapted to the cultivation of cotton.

With regard to cultivation he states that "the rice cultivation is dependent entirely upon the quantity of rain you have during the rainy season;" but there is this advantage in dry cultivation, that after the seed is once in the ground the dew is quite sufficient to mature the crop without any rain whatsoever, so that you find the dry cultivated tracts in a state of the greatest prosperity, while you see the wet or rice cultivation starving for want of water."

Mr. Mercer, in passing through the north-western parts of the valley of Berar, states with respect to soils, "There seem to be three kinds of soil devoted to cotton in Berar: the black *regar*, or basaltic soil; the *ranker*, or gray kunkery (nodular limestone) land, and a brown kunkery soil. The produce of the black land stands first in the Oomrowtee market. The *ranker* produces a small plant and a harsh weak staple. The brown soil produces the finest-looking plants, apparently a larger produce than either of the others, and the staple is scarcely inferior to that from the black land. All these soils seem to me of a mellow nature than soils of a similar description in Bundelcund." "There is no irrigation used for cotton, nor manuring, except when it is accidental, by the bringing in a piece of ground used as an encampment by the passing Brinjarras (carriers), or by the villagers as a herding-place for their cattle; when this does happen the superiority of the cotton is very remarkable."

Mr. Mercer's published journal concludes at Baitool, but he subsequently visited Oomrowtee, in the Berar valley, for in a memorandum dated Lackenwara, Feb., 1843, he states that between Ellichpoor and Oomrowtee he found that cotton formed one-half of the whole cultivation, and that the merchants at the latter place accounted for the superiority of the cotton of Hingunghat by the care in gathering and cleaning, and the very superior land in that district. "The cotton is planted without admixture of other crops, and is sown in rows of a cubit or a little less in width, thinned to a single stalk in a place. There is nothing, however, like ridging; and the same complaint I heard in the valley of the Nerbuddah, of too much rain, is also made here. From the omission of that one single process, the crop is at the mercy of every shower that falls." In the picking, housing, and cleaning, everything requires to be improved.

From these statements of those well acquainted with the country and with the culture of cotton, there can be no doubt that both the soil and climate of many parts, though not of the whole, of the Nizam's territories are well suited to this cultivation. The cotton which is already produced is described as fine and soft, and, though unequal, of pretty good length of staple. The specimens sent to the author by Mr. Mercer bear out this character, and have been approved of by spinners in this country; but the mass of the cotton exported is much too dirty to command the full price that the cotton itself is worth. If the ryots could be taught to pick it clean and to keep it so, its value would be greatly enhanced. But of this there is not much probability at present. The revenue system as practised in the Nizam's territories, and so well described by Capt. Reynolds (v. II. of *C.'s Report*, p. 414) as existing in his time, is not calculated to give encouragement to the cultivator, and the country does not appear in a better state in the present day. The ryots usually sell their cotton in the state of kupas, that is, cotton with the seed, to the agents of the Marwarree firms established in Oomrowtee and other cotton marts. These middlemen have not hitherto shown themselves disposed to make their profits depend upon the purity of the cotton which they sell.

Many parts of the Nizam's territories must be suited for the culture of American cotton; but there are considerable difficulties in cultivating it in the black cotton soil—indeed, it has usually failed in that soil, especially when there has been much moisture in a wet season; but, again, in a dry season the soil has retained moisture when plants in a more porous soil have been burned up, as will

be more particularly related under the head of the "Experimental Culture at Coimbatore, in the Madras Presidency." Any improvement in culture so as to suit it to the soil and climate, or the introduction of new species, is not likely to be successfully undertaken unless under the special superintendence of a competent planter, as has been already mentioned under the head of "Nagpore."

The mode of carriage, that on bullocks, is moreover unfavourable to the preservation of the cotton in a clean state, from the daily necessity of unloading and throwing the packages down, whatever may be the nature or condition of the soil. Capt. Reynolds has stated that there will always be considerable difficulty in making a good road in the Berar valley itself, from the peculiar nature of the black basaltic soil, and the numerous rivers. But as the travelling is chiefly during the dry-weather months the irregularities (*oonehas neechas*) of the surface might be removed at a comparatively small expense, so as to enable carts to travel with facility. Capt. Reynolds, indeed, himself says that he drove his carriage nearly the whole of the distance from Jubbulpore to Bombay. (*Report*, p. 417.) The road (about 400 miles) from Jubbulpore to Mirzapore he describes as excellent, and that from Nagpore to Jubbulpore (about 350 miles), made at the expense of the Indian Government, and metalled throughout, as "a most magnificent undertaking." The military roads which connect the Madras Presidency with Nagpore and the Nizam's territories are stated in the *Madras Medical Reports* to be in excellent order; but the communications on the westward, or between Berar and Bombay, are described as being imperfect, and therefore requiring the employment of bullocks. Mr. Fenwick, however, who is settled at Khamgaum, states (v. p. 59), that the use of carts was increasing, and that perhaps a third or more of the cotton from Khamgaum is now carried on carts.

Capt. Reynolds has, however, called attention to the route taken by the Brinjarras being dependent, in a great measure, on the agreements made with those who farm the transit duties from the Nizam. He adds, "You would suppose that the cotton would naturally take the route indicated by the main road, but that is a mistake;—the route is not dependent upon your having made a carriage-road, but upon the route defined by the hoondakars who have contracted for the duties, and unless you do away with your transit duties your roads are of no use whatsoever." (*Report*, p. 418.) According, therefore, to the terms offered by the contractor being satisfactory or otherwise, produce may be carried by the direct road, or it "eventually arrives at Bombay by a circuitous route." The Brinjarras, or carriers, will never allow themselves to be restricted to time; they confine themselves to the road, because they are obliged to adopt roads that the hoondakars have previously established.

It is probable that some part of the cotton, as well as other produce of this interior tract, might be conveyed down the Godavery, as was done in the time of the Messrs. Palmer, but this would require, in the first instance at least, the energy of European agency and some improvement in the mode of river navigation.

But it is in the direction of Central India from Bombay that the railway projected by Mr. Chapman is to come, and it will greatly facilitate the transit of cotton as of everything else. Mr. Chapman has stated that "cotton of good quality for English use is to be had in Berar (in Central India, 300 or 400 miles from Bombay) at about 1½*d.* per lb., ranging of late years from 1¼*d.* to 1¾*d.*" The Bombay Cotton Committee "estimate the total cost and loss of carrying cotton from the interior to Bombay at 1*d.* per lb.; by railway they would not be more than one-third of a penny."

"With a railway the cost of cotton from these countries landed in England would be made up, on an average of years, as follows:—

"Price in Berar.....	1-5
Transit duties in the native states.....	0-1
Conveyance per rail, at 2½ <i>d.</i> per ton per mile.....	0-37
Screwing and shipping charges in Bombay, at 6½ Company's rupees per candy of 784 lbs.....	0-2
Freight to England, at £3 per ton of 50 cubic feet.....	0-52

Pence per lb. 2-69"

o "16 Hyderabad rupees, or 15 Company's rupees, per load of 240 lbs., is a current price in Berar."

This, as Mr. Chapman says, may be considered to be about 23½d. per lb. without profit. But it is improbable that the price would remain so low if the cotton was found fit for the English manufacturer, and especially if any were presented to him in a cleaner state, or at all improved in staple. The railway would not only facilitate the transit of cotton to the coast, but that of agents into the interior, who would purchase up the cotton and sell it for what it was worth at the prices of the day, which must, for some time at least, depend upon the crop of American cotton and the state of the manufacturing interests in general. The prices in Dharwar, even for cotton from American seed, were about 55 rupees the kandee only a year or two since. This year the native dealers are giving 100 rupees for the same quantity to sell again at Bombay, as will be more particularly related under the head of "Dharwar."

§ 23. CULTURE IN SHORAPORE.

Capt. Meadows Taylor (pp. 55--59), to whose valuable report on the state of the cotton trade of Shorapore (not Sholapore) we have already alluded, does not, in reply to the queries, give a very favourable view of the culture or cleaning of the cotton of that province, nor of its being carried on to any great extent; but the soil is varied, and the climate appears favourable. There is little doubt, therefore, that much good cotton might be produced in addition to what is already grown, either for home consumption or for export. Capt. Taylor states that the ryot does not usually get advances for his cotton, but sells it in small quantities to itinerant merchants after he has himself cleaned the cotton, reserving the seed for the feeding of his cattle. By keeping the cotton in his own possession he is able to take advantage of the market, and in many cases also to dispose of it after it has been spun into yarn by his family. By this means he realizes a much higher rate of profit.

Capt. Taylor, in addition to giving an account of the present state of the cotton trade in Shorapore, has given a notice of his attempts to introduce the culture of American cotton into the province, where he is stationed on special duty. We have made the following extracts from his report, by which it may be seen that though the quantity of cotton produced per beegah is not so large as we have seen stated in the reports of the North-West Provinces, yet it is larger than is admitted in some of the districts we have to mention, which are specially considered to be cotton-yielding districts. This indicates a favourable state of the soil or climate, perhaps of both. The success which has attended Capt. Taylor's last experiments bids fair to introduce the American cotton as a permanent product of the province of Shorapore. This will greatly benefit the ryots, for they seem to have the trade at present in their own hands, and will be ready to take advantage of the example of the neighbouring district of Dharwar. The following are the reply and experiments referred to:—

"QUESTION.—What is the average produce of cotton per beegah or acre?

"REPLY.—An average good crop of cotton per beegah or acre from a clean field of 30 beegahs, the size of the beegah being 3,864 square yards, is estimated with seed at six candies of 240 seers per candy, or 1,440 seers, or 48 seers = 96 lbs. per beegah. A lesser crop would be 5 candies or 1,200 seers, 40 seers per beegah. An inferior crop, 3 candies or 720 seers, 24 seers per beegah. A very poor crop, 2 candies or 480 seers, 12½ seers per beegah.

"The above would give an average of four candies at least on each 30-beegah field, and on all descriptions of soil 32 seers or 64 lbs. per beegah, and as the cotton crop is usually a good one, I do not think, in a series of years, that the average would be under five gross candies per field of 30 beegahs, or 40 seers = 80 lbs. per beegah, as the highest average taken is often exceeded in favourable seasons and in fertile roads. The above estimate is taken from several, obtained from different cotton districts of the Sumusthan, principality of Shorapore.

Quality of Cotton.—I have frequently examined the quality of cotton in various localities of the Sumusthan, and have observed considerable difference in it. That grown upon the ordinary regur or black soil, which is connected with trap rocks or boulders, is of a rough, strong, but short staple. That, again, which is grown

on lands in which limestone measures prevail, is much superior, being longer in staple and of a softer quality, and, as the limestone tract is of great extent comparatively with the other, I should estimate that the produce of the latter would be at least as five to two of the former. No classification is, however, made by the dealers or merchants, who are probably unaware that any general difference exists.

"The cotton grown is entirely of the native indigenous kind, and the same objections to it as to short staple, and in breaking of the dry leaves about the seed pod into the cotton, as well as of the thin shell of the pod itself at the time of gathering, exists here as elsewhere where the same description of produce prevails, and which has been found so difficult to eradicate in the various cleaning processes resorted to in England.

"I have made several attempts to introduce into the Sumasthan the Bourbon and New Orleans seed which has succeeded so well in the Southern Mahratta Country, and made trials of both in limestone and trap black soils, but hitherto without success to any extent. The cotton succeeded very fairly upon the limestone soils, and when sown at the usual time of sowing there, that is, about August. Last year, however, there was a total failure of the crop on the land where the American cotton was sown, which has induced me, with a new supply of seed from Dharwar, to try it again this season, upon a different principle.

"Thus I have tried small portions, both of Bourbon and New Orleans cotton, in red gravelly soil, sowing them at the very commencement of the monsoon, and the result was more complete than I could have supposed. The plants grew to a height of upwards of six feet, the branches spreading laterally about three feet from the stem, they were vigorous and healthy; the branches weighed down by the weight of the pods and leaves, and the produce, both in amount and in quality of staple, far surpassed any that had been grown in black soils, and a later period of the monsoon. I beg to transmit with this report a sample of the cotton thus produced. I have carefully sown all the seed of the Bourbon cotton, and this, with the New Orleans received from Dharwar, is now being sown, under my own superintendence, on red and mixed soils which I have selected. The amount of cultivation will probably be 100 beegahs, which will afford a fair proof of the adaptation of the cottons to the red soil, which has never hitherto been tried here for cotton. Should this trial be successful, I should not despair of being able gradually to introduce the cultivation of both kinds of cotton among the ryots upon the red soils which now bear produce of an inferior quality and value."

The author has no doubt that the last-mentioned experiment has continued to succeed, as he was informed in the beginning of the year by Mr. Blount, the planter in charge of the experiments in Dharwar, that he had sent two gins to Shorapore, to clean the American cotton which Capt. Taylor had grown.

From "Cotton in the Bombay Presidency," by WALTER R. CASSELS, 1862.

CHAPTER XIII.—EXPERIMENTAL CULTURE IN BERAR AND THE NIZAM'S DOMINIONS.

Account of Berar by Major Meadows Taylor—Varieties of Cotton—Geology and Topography of North Berar—Climate—Cotton culture—Yield—Diseases and noxious Grasses—Rotation of Crops—The Cotton Marts—Transit dues—Cotton in the Valley of Berar—Cost of cultivation—Experimental culture—Report on Samples—Area of cultivation, and estimated produce—Means and cost of transit—Cotton cleaning—Waste lands—Colonization—Roads—The Godavery.

Although the province of Berar is not under the jurisdiction of the Bombay Government, it is commercially so intimately connected with this Presidency that no account of our cotton trade would be complete without some notice of it. It is unnecessary here to state that of the large assigned districts once in the hands of the Government of India the greater part has been restored to the Nizam, the Raichore Doab and the Dharaseo district having been surrendered very recently, and the rich valley of Berar is the only portion which is still retained.

The following interesting and comprehensive account of Berar and its cotton culture was furnished to Government, in 1858, by Major Meadows Taylor, Deputy Commissioner for North Berar:—

"There are two kinds of cotton grown in North Berar, locally termed

'Bhunnee' and 'Jherree.' The former is most esteemed by the native merchants, as being of a stronger fibre than the other, and bears a somewhat higher price, that is, three to four rupees more per candy of 400 pounds. The best 'bhunnee' in North Berar is produced at a village called Boldi, of the Akote Talooka, near the foot of Nernalla, and in the villages around it. The soil at Boldi is very deep, but is not black; on the contrary, brown, grey, and yellowish soils seem to predominate, and are all of a lighter or less consistent quality than the regur or black soil of the tracts more distant from the hills. The cotton at Boldi was very fine this year, and one specimen showed 321 pods and flowers on it, which is forwarded among those for America. In general, the plant was from 5 to 6 feet high in well-tilled fields, and the weight of produce must have been very considerable.

"I found that in the Burroor Talooka, which lies between the mountains and the river Wurdah, 'bhunnee' cotton is also exclusively sown. The soils appear to me of a similar quality to those about Boldi, that is, of higher colour and less tenacity, intermixed near the hills with stones and gravel; but they are not so deep, and there is much of the land which has very shallow soil, and on which the crops are by no means luxuriant.

"I assume, therefore, that the 'bhunnee' cotton likes a light, rich soil, and that it is best suited to the localities in which it is grown—namely, those bordering upon and below the hills. The whole of this soil lies upon basalt, which in the Burroor Talooka is near the surface. The depth of the soil at and near Boldi I could not ascertain in the fields themselves, but by the side of wells it appeared from 10 to 15 feet deep, after which is a greyish-white or yellowish clay, or friable conglomerate composed of basalt pebble, rough agates, and chalcedonies, joined by a tufaceous deposit of lime. These clays and conglomerates are seen also occasionally in Burroor; but the basalt itself is within 3 to 10 feet of the surface, frequently cropping out or appearing in the beds of streams or bottoms of wells.

"I may briefly here describe the geology and topography of North Berar. It is a valley 40 to 60 miles broad, between two ranges of basalt and trap mountains. On the north side the Satpoora range rises to a height of 3,400 to 3,600 feet above the sea. On the north side the range varies from 300 to 600 and 800 feet in height, the plain of the valley being from 800 to 900 feet above the sea. The Satpoora range is much broken by deep valleys as far as the Taptee river; in fact, the tract from the plain of Berar to the Taptee is entirely composed of high basaltic mountains, intersected by narrow and deep ravines, heavily clothed with jungles, and having a sparse population. On the south side the range is merely the summit of one of the great Deccan plateaus, which slopes gently to the southward and eastward, the streams falling into the Wurdah, and eventually into the Godavery.

"The basalt on both sides of the valley is occasionally prismatic and columnar, more so on the north side than the south, where amygdaloid trap is not unfrequent, which does not appear in the Satpoora range. Opposite to Ellichpoor, and continuing eastwards for about 30 miles, prismatic sandstone composes the lower or outer range of hills, through which it is evident the basalt has been forced upwards. At the junction of the sandstone and basalt the sandstone strata is found to be irregularly disturbed, and in some instances changed in texture and quality by partial vitrification. The sandstone is of various colours—grey, yellowish-white, and grey, pink, with purple streaks, assuming the character of bunter sandstone.

"From the plain on the north side of the valley the mountains rise very abruptly, and with steep scarped faces, in many parts of prismatic and columnar basalt. On the south side the ascents are more gradual, and spurs from the plateau extend into the plain for some miles.

"From both sides the basalt appears to descend to the centre, where it is not visible or generally traceable at all. The depth of the soil increases with the declination of the substratum rock, and at the salt wells of the Dyhimda Talooka, in the centre of the valley, the shafts of the wells pass through from 90 to 120

feet of black earth and yellowish-greyish clays, almost without a pebble of any kind, till the brine is reached, which appears, if I may use the expression, to be a subterranean salt lake, about 50 to 60 miles long, and 5 to 15 broad; brine wells are at least used in this area at different localities.

"It may be judged, therefore, that the soil, being of such depth, without stones or gravel, and being tenacious of moisture, is very rich, and fertile. The soils, indeed, towards the centre of the valley require little or no manure, and once broken up from waste or jungle-covered land require, it is stated, no further ploughing for from 10 to 20 years. After this they are again reploughed, or intermediately if overgrown with grass, as frequently happens. The natives declare that more frequent ploughing would injure the land by altering the quality of the soil; that manure makes it too rank, and also alters the quality, and that experience shows them that the ancient custom is the best—of not reploughing till the surface soil shows unequivocal signs of being exhausted.

"It is in these deep rich soils that the 'jherree' cotton is grown for the most part; but I have observed it also on poorer and more gravelly soils, where it was evidently out of place, and 'bhunnee' would apparently have done better.

"The difference of quality appears to me as follows:—'Bhunnee' is a shorter and stronger fibre. The native definition and test of the best 'bhunnee' is that a handful squeezed at the ear ought to give out a crisp sound in compression. The 'jherree' gives no sound, and is softer, and perhaps weaker, in fibre.

"There is no question on the lighter kinds of soil that manure and early ploughing is necessary. Those fields that have been ploughed and manured, or where cotton has been grown after turmeric, sugarcane, vegetables, or other garden produce which had required rich manuring, show very differently to those where no manure or ploughing has been applied. 'Bhunnee' and 'jherree' are both grown as after-crops to sugarcane and turmeric, &c. But the richest and most productive fields are those which are of newly cleared and ploughed land; and in this the 'jherree,' particularly where the soil is black and deep, as in the centre of the valley, is very luxuriant, attaining a height of upwards of 8 feet, and, if the plants are not crowded, bearing side-branches of three to four feet, covered with pods and flowers.

"The general nature of the soil has been already adverted to as a deep alluvium, that near the hills being probably disintegrated trap and basalt rocks. All the soil is more or less retentive of moisture. The rains cease in October, or very early in November, and the sky then becomes clear and open, and the sun is powerful, but the soil does not dry beyond a few inches from the surface, or as much as has been disturbed by the large hoe-plough used. Below that the ground remains moist, and in the deeper soils opens in large fissures from the evaporation. This moisture, in fact, never leaves the sub-soil, even in the hottest weather, and at three feet below the surface there is always moisture enough in the sub-soil to sustain vegetation. On the first heavy fall of rain it is absorbed by the deep fissures into which it runs; very little escapes till the surface is saturated. The ground then swells, and the fissures close up entirely. The surface is so soft that in wet weather it is impossible for carts to move about; but as it dries sufficiently for a seed-plough to be used the cotton is sown as fast as possible.

"The geological and topographical description of the district has already been given.

"It is, as will have been understood, a wide plain between two ranges of mountains. The drainage is carried off by the Poornah or Pywooshnee river; no intermediate range nor undulations break the character of the country, and it appears a dead, unbroken level to the eye, though it has a gentle and uniform slope from the side to the centre. The whole has sufficient slope to prevent stagnation or lodgment of water in any part, and yet is sufficiently flat to allow of absorption of moisture, while the surface soil is not reduced or carried off by heavy rains.

"The climate of Berar is salubrious in general, though hot. There is no

HYDERABAD AFFAIRS.

jungle, so to speak, except at the very foot of the hills, and in the hills themselves, cultivation being carried on as far as there is soil, and to the verge of the rocky region. Here and there there are patches of thorny brushwood in the plain, but it is rapidly disappearing under cultivation. The cold weather, which begins in November, lasts till the end of February. The lowest temperature I have seen this year in the open air is 39° at day-light in December. The usual range minimum at day-light for November is from 45° to 55°, for December 40° to 50°, January 40° to 60°; February has occasional cold mornings, but, for the most part, the temperature sensibly increases. In March the temperature continues to rise, and it reaches its maximum in April and May, when violent hot winds blow. The thermometer rises to 110° in the shade, the minimum in the mornings being 80°. There are sometimes showers in February and March, accompanied by hail-storms; but these are of no use for cultivation. Light showers fall frequently towards the end of May, which are acceptable to cultivation, as softening the surface for the large hoe. About the 5th or 10th of June the first rain of the south-west monsoon falls, and the rains continue till the 15th October, or, in some instances, till the 15th November; but a late monsoon is prejudicial to all crops. If rain ceases in October, there are usually a few heavy showers in December, which are esteemed favourable for late crops; but if the rain continues till November there is no rain again till the occasional showers in February or March. The amount of rain for a good average monsoon is about 30 inches, and since the cession the falls have been—

	Inches.	Cents.
In 1853.....	No register of rain kept in this year.	
In 1854.....	Do.	
In 1855.....	21	59
In 1856.....	37	93
In 1857.....	32	75

“The prevailing winds are north-east and north from November to January—dry and cold. The wind comes round to the westward, being west-north-west and north-north-west in January and February, and may be said to be variable in March, April, and May. In June the south-west monsoon opens, and continues from west-south-west, south-south-west, and occasionally north-west, till the close of the rainy season. Irrigation is not employed in the district to cotton. It is considered prejudicial to the plant, and the natural rain is sufficient, for in most seasons opium, sugarcane, plantains, turmeric, betel and vegetable gardens are irrigated, as also the late wheat and barley. The irrigation is from wells, the water being raised by the mote, or leather-bucket, drawn by bullocks.

“The seed sown is obtained from the produce; there is no change. Occasionally, and when crops are not good, the people get seed from a village in which the crop has been good, or from a different pergunna or country. They seem to be aware that a change of seed is sometimes requisite. American (New Orleans) seed has not yet been tried; but at Akote there are a few beegahs sown (too late, however, to produce much this year), which were healthy when I saw them, and I consider that the Dharwar seed would be found to answer, and would be liked by the people.

“The cotton plant is exclusively herbaceous. It is an annual. There is no tree cotton in the district, of any kind.

“The average height of 12 plants of ‘bhunnee’ cotton is 5 feet 6 inches, of 11 plants ‘jherree’ cotton 7 feet 3 inches. The average spread of branches of ‘bhunnee’ 1 foot 10 inches, and of ‘jherree’ 2 feet 4½ inches. The seed is well rubbed with a mixture of cow-dung and earth, allowed to dry, and sown with a drill-plough, and the seeds fall generally from 4 to 6 inches, or one foot at the utmost, from each other. It would improve the yield, I think, if the plants were well thinned, as when close they run up to stalk. The native farmers do not appear to be aware of the advantage or necessity of thinning.

“The average length of tap roots of 12 specimens of ‘bhunnee’ cotton is 1 foot 5 inches, of ‘jherree’ 1 foot 8½ inches; and of 12 specimens of ‘bhunnee’ 2 feet 2 inches, and of ‘jherree’ 1 foot 10 inches.

"The ground is ready by the end of May, whether newly-ploughed waste land, old land, or land from which sugarcane or turmeric has been taken. If the former, no manure is required, nor if the field has been under garden cultivation, as sugarcane, &c. For old land the manure is village sweepings and refuse from cattle-sheds, but comparatively little dung of animals, as cowdung is made into cakes, dried in the sun, and used as fuel, and there are few horses. The quality of the manure is very indifferent, and shows practically how very mild a stimulus the land requires. It is laid on the land in small heaps at regulated intervals. The large, heavy, two-bullock hoe, which is weighed by stones besides the man standing on it, is then worked through the field lengthways and breadthways; all the stubble, dead leaves, weeds, manure, &c., is thus mixed up, and falls into the cracks and fissures caused by the hot weather. This operation is repeated twice—once before the rain falls, and once after the ground is wetted sufficiently by the rain to sow the seed, to clear away any weeds that may have sprung up, and to soften and mix the soil. This hoe, though apparently rude, is a very efficient agricultural implement, and answers the purpose perfectly. The seed is sown directly the ground is moist enough, and the criterion of the moisture is the thorough wetting of all soil which has dried, till the sub-soil moisture is reached. Should very heavy rain have fallen in May, seed is sometimes in the ground by the end of that month; but otherwise the whole breadth of the crop is sown between the 15th June and 1st, or, at the latest, 15th July. If there is a heavy drought in June and July, as happened this year, sowing is unavoidably delayed till August; but the crop is not nearly so good. In the Shorapoor district, where I was before, the cotton sowing did not begin before August, and the plant was much later in ripening; but the soil there, lying on limestone and trap, is no doubt more retentive of moisture than generally in Berar. The plant is generally weeded twice; but this depends on the state of the ground. In old fields, and in manured fields, there are more weeds and grass. In newly-ploughed land, or land well kept, no weeds or grass appear; if any, they are eradicated by the large hoe before sowing, and do not spring up again. There are two weedings. The first is done by a small hoe when the plant is a month old. Two are used attached to one yoke and pair of bullocks, a man or boy to each hoe to direct it. The hoe is from 6 to 8 inches broad in the blade, and penetrates about 4 inches below the surface. This not only weeds the field, but throws up earth on each side of the plants, leaving a small furrow in the centre. After this, when the plant is two months old, or whenever necessary, the field is weeded by hand, generally by women, and all grass and weeds carefully removed from the furrows, as well as, more particularly, about the roots of the plant. No further weeding is necessary, and it is all finished before the plant comes into flower, which is usually the middle of October, though delayed occasionally by late rains to November. The first picking depends, of course, upon the time of sowing. In good seasons it is finished by the 15th to 30th December, in which case the second picking is a month later, or 15th January. This year the first picking commenced from the 20th to 30th December, and the fields will continue to yield for another month. There are only two pickings in Berar. It is done by women and children entirely, and they receive about one-sixteenth part of the produce as payment for their labour. By this means an active woman can gather about 15 seers, or 30 lbs., of cotton a day. It would be much better if the cotton were picked oftener; for, exposed as it is in the pod, or hanging from it ripe, it gathers dust and dry leaves, or is blown from the pod to the ground. I am informed that since the cotton has been so largely in demand for the English market it is picked more cleanly than before; but there seems still large room for improvement. The yield of cotton from a beegah of 3,600 square yards is estimated as follows; * the seed is included:—

	Seers per Beegah.	Pounds, English.
1st rate crop	45 to 60	90 to 120
2nd do.	35 to 40	70 to 80
3rd do.	20 to 25	40 to 50

* "Newly-ploughed virgin soil is known at times to yield 12 to 140 lbs. per beegah; but the above are given as unexaggerated averages."

The proportion of seed to cotton fibre is usually as one-third, and occasionally one-fourth, of the total weight of the yield. The weight of fibre in proportion to seed depends entirely on the quality of the land. The rate seldom varies, except in very poor land, where the weight of seed predominates over that of produce in good land, and is equal to one-fourth. The cotton is ginned in the common churka, which is two wooden rollers of about an inch in diameter, or one wooden above and one iron below, turning in opposite directions. This simple machine is worked by the hand; and two active women, feeding and working by turns, will clean 40 lbs. of raw cotton per day. The cleaning is done almost exclusively by women. The iron foot-roller and stone is not used in this country at all. For a separation of the seed from the fibre the village churka is sufficient, nor does it cut the fibre at all; but it does not clean the cotton of dirt, and is a slow process in comparison with the saw-gin.

"The manure used has already been noticed. It is of very inferior quality. No cotton seed is returned to the soil. The seed is used occasionally for oil and oil cake, and to feed cattle with, especially milch-cows and buffaloes, and is considered very nourishing. The stalks of cotton are not removed by the farmer. If large and fine, they are used, and sold as they stand, for thatching houses and outhouses, mixed with grass or sugarcane leaves; or to a tribe of people (basket-makers), who make large cylindrical basket-work frames for holding grain, and rough baskets for field work in general. In some cases they are pulled up, and used for firewood to boil sugar pans, or, if not wanted or very short, are left in the fields, and ploughed in or removed by the hoe, and left to rot. But in all cases directly the cotton is picked cattle are turned into the fields, with sheep and goats, which eat off the green leaves that are left.

"Cotton appears to be subject to few ravages by insects; the people do not speak of them as if they were common; when they have occurred, it is by an insect which punctures the boll, lays its eggs therein, the larva from which destroys the soft fibre, and the boll never opens. I can find no trace of this insect this year, and it is stated to be known only when the rains continue to a very unreasonably late period, and the plant remains unusually green, by the ground being wet. In this case the pods do not ripen. The rain which causes this affection falls in the middle of November, and is considered very unfavourable. Occasionally also a blight appears if the cold, dry, easterly winds set in violently, as is sometimes the case in the *early* part of November, or late in October. The plant is not strong enough to withstand them—the tender leaves blacken and curl up, the buds and flowers fall off, and the tender upper shoots are withered altogether. The plant seldom recovers a blight of this kind, and if it puts forth new leaves or flowers they are small and abortive.

"I have forwarded a bundle of the most ordinary weeds found in the cotton. I do not know their botanical names. But weeds in general do not appear mischievous: the worst is one with a light-blue flower, which grows thickly, and, as the seed soon ripens and scatters, is not easy of eradication. The worst enemies to cotton are the grasses, and of these the four most usual specimens are forwarded, as follows:—

"*Scepee*.—A light, soft, annual grass, which grows about the roots of the cotton and between the plants. It has a rapid growth to about a foot in height, spreads laterally, and chokes the cotton if not removed in time.

"*Lona*.—Another light annual grass of the same description.

"*Hurrialee*.—A perennial grass, which has long roots, and spreads very rapidly; the growth is not over a foot high, but the roots speedily become matted, and once a field becomes infested with this grass it is generally thrown up,—allowed to be fallow for a year or two, and then ploughed up again. If the grass is light it can be removed by the weedings already detailed—by the hoe and hand.

"*Koondah*.—The specimens sent will show how formidable this grass is in regard to its roots, which become matted together, and cannot be eradicated but by the heavy plough, or, as is often employed, the pickaxe,

in digging the whole out to a depth of two feet. The grass appears first in small patches in the fields, and a careful farmer has it eradicated at once ; but poorer people, who cannot afford the labour, allow it to spread till the whole field is covered and becomes useless. Nothing will grow in this grass, and neither the hoe nor surface-weeding has any effect upon it. The masses must be broken up by the plough, or dug out, and roots left for a whole hot season exposed to the sun before their vitality is extinct.

"The cotton crop is strictly in rotation with other crops, and the produce of the district besides cotton on unirrigated land is—

Local name.	Botanical name.	Local name.	Botanical name.
Bajree	<i>Panicum spicatum</i>	Batana	<i>Pisum sativum</i> (pulse)
Jowaree	<i>Holcus Sorghum</i>	Kurrnd	<i>Carthamus tinctorius</i> (safflower)
Wheat	<i>Triticum aestivum</i>	Erundeo	<i>Ricinus communis</i> (castor-oil)
Gram	<i>Cicer arietinum</i>	Rajgeera .....	.....
Ambaree	<i>Hibiscus cannabinus</i>	Karel	<i>Guizotia oleifera</i> (niger seed)
Til	<i>Sesamum indicum</i>	Aal (madder).....	<i>Morinda citrifolia</i>
Moong	<i>Phaseolus Mungo</i>	Jowus	<i>Linum usitatissimum</i> (linseed)
Oord	(pulse)	Mukkye	<i>Zea Mays</i> (Indian corn)
Musoor	<i>Ervum Lens</i> (pulse)	Sunn	<i>Crotalaria juncea</i>
Toor.....	<i>Cajanus indicus</i> (pulse)	Race.....	<i>Sinapis sp.</i> (mustard)
Lakh			

"There is no precise rule as to the rotation of these crops ; they are taken as the farmer has occasion for them ; but it is a general rule that cotton is not sown for two years running in the same land, and generally every third or fourth year."

In Berar, to the west of the river Wurda, are the two great cotton marts (Oomrawuttee and Kamgaum) from which the cotton known in Bombay as "Oomrawuttee" is received.

"The cotton which supplies the Oomrawuttee market is produced in the following pergunnas in Berar, viz. :—Bunnerea Beebee, Durgaopore, Soorjee, Anjungaum, Ellichpore, Chandoor, Togaum, Kolapoor, Nadgaum, Koora, Mungrool, Tullygaum, Dussesur, Hewurkair, Buroor, Morchie, Jooso, Serrisgaum, Mana, and Moortuzapore.

"The cotton which supplies the Kamgaum market is produced in the under-mentioned pergunnas in Berar, viz. :—Akote, Argaum, Jamode, Jelgaum, Bunneria Booljee, Mulkapore, Bulapore, Akola, Dehinda, and Punnajé.

"There are also three smaller cotton markets in the territory of Berar, viz. :—Larka Karinja, Busmut, and Byrag Barsee. I have not been able to ascertain in what pergunnas the cotton which supplies these markets is produced.

"There are two considerable cotton markets to the east of the Wurda River, in the territory of the Rajah of Nagpore, viz. :—Hingunghat and Arvee. The cotton brought to the Hingunghat market is produced in the following pergunnas, belonging to the Nagpore Rajah, viz. :—Hingunghat, Maungaum, Andoric, Wyegaum, Kamgaum, Pohna, Natchengaum, Deolie, Ponar, Seyboo, Kelzer, Seindee, and Bela.

"The cotton brought to the Arvee market is produced in the Nagpore Rajah's pergunnas of Arvee, Seyloo, Ashtee, Annair, and Kaondalee, and some of it is produced in the Nizam's pergunnas to the west of the Wurda River, which are near the Arvee." "Barsee" cotton is the produce of the district north of the Bheema.

This cotton used formerly to be exported by the following routes :—

"The cotton from Oomrawuttee and Arvee was taken to Bombay by Larka Karinja, Bassein or Wassein, Reshare, Nursee, Banunnee, Purtoo, Amba, Ahmednuggur, Seroor, Rosur, Khandalla, Panwell, and from thence by boat to Bombay.

"The cotton from Kamgaum was taken to Bombay by Mulkapore, Boda, Chaliggaum, Nassick, Colsette Bunder, and from thence by boat to Bombay.

"The cotton was taken from Hingunghat to Mizapore, *via* Nagpore, Seonee,

Jubbulpore, Myheir, and Rewah, and from Oomrawuttee and Arvee to Mirzapore, *via* Amnair, Chindwarah, Rewah, Jubbulpore, Myheir, and Reewah."^a

Of these kinds the Hingunghat is considerably the best, but of the quantity produced only a small part comes to the Bombay market.

At present, of course, a large part of the cotton traffic is arrested at Chalisgaum by the G. I. P. Railway, and thence brought direct to Bombay. An extension of this line will, before very long, run through the Valley of Berar to Nagpore, and, aided by a judicious system of feeders, will no doubt rapidly develop the resources of this fertile province, and carry much of its produce to the western coast.

One of the great obstacles to the expansion of the trade with Berar has been the heavy transit duty levied by the Nizam. The manner in which, under the former "complicated system of extortion," the merchant contrived to get his cotton to market was described by Captain Reynolds in his evidence as follows : —

"There is a system in force in Central India which is called *hoondakuree*; in fact it is a farming of the transit duties on particular roads. There is a great firm established at Oomrawuttee, which is one of the greatest markets in the Berar Valley, and from which roads diverge in every direction, where much cotton that is cultivated in the Berar Valley and in Nagpore is collected, and from thence sent off either to Calcutta or to Bombay. It consists of a firm of bankers under the term of *hoondakurs*; they send out messages yearly, as soon as the transit duties have been farmed by the native government, to the contractors, on the various roads, to make arrangements; for instance, on the road to Bombay, a man starts from Oomrawuttee and goes to the first district to the transit duty contractor, and says, 'I shall have the means of passing 500,000 bullock-loads of produce through your district during the next twelve months; at what rate will you levy *sayer* duties on the various commodities?' If the terms are satisfactory, a bargain is at once struck; but if unsatisfactory he diverges to the right or left, and tries the contractors in the two neighbouring districts, and he ultimately frames his agreement with the one or the other, and by these means he eventually arrives at Bombay by a circuitous route; but he is able to strike an average of what he has to pay on every description of produce between Oomrawuttee and Bombay. Supposing that the cotton crop has been collected, and is in course of transit to Bombay or Calcutta, the owners of the crop go to this firm and ask them, 'At what rate will you pass me 100,000 bullock-loads of cotton from hence to Bombay?' They state at once the rate which they demand; this rate has no reference whatsoever to the time to be occupied in the transit, because the time of transit has to be regulated by the bargain that may be made with the hereditary carriers (the *Brinjarries*), who alone have the carrying trade in their hands, and who undertake to deliver at Bombay as many bullock-loads of cotton as may be made over to their custody; but they will never allow themselves to be restricted to time; they restrict themselves to the road, because they are obliged to adopt roads that the *hoondakurs* have previously established."†

The transit dues have, however, within the last few months been abolished.

Mr. Mercer, the American planter, gave the following account of the north-western parts of the Valley of Berar :—"There seem to be three kinds of soil devoted to cotton in Berar: the black *regar*, or basaltic soil, the *rankur*, or grey *kunkur* (nodular limestone) land, and a brown *kunkur* soil. The produce of the black soil stands first in the Oomrawuttee market. The *rankur* produces a small plant, and a harsh, weak staple. The brown soil produces the finest-looking plants, apparently a larger produce than either of the others, and the staple is scarcely inferior to that from the black land. All these soils seem to me of a mellow nature than soils of a similar description in Bundelkund. * * * There is no irrigation used for cotton, nor manuring except when it is accidental, by the

^a Returns, East India Cotton, 1857, page 52.

† Minutes of Evidence, Select Committee, House of Commons, 1848, on Growth of Cotton, pages 416 and 417.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

bringing in a piece of ground used as an encampment by the passing Brinjarries (carriers), or by the villagers as a herding place for their cattle; when this does happen, the superiority of the cotton is very remarkable." He stated that the merchants of Comrawuttee accounted for the superiority of the cotton of Hingunghat by the greater care in gathering and cleaning, as well as the very superior land in that district. "The cotton is planted," he continues, "without admixture of other crops, and is sown in rows of a cubit or little less in width, thinned to a single stalk in a place. There is nothing, however, like ridging, and the same complaint I heard in the Valley of the Nerbudda, of too much rain, is also made here. From the omission of that one single process, the crop is at the mercy of every shower that falls."

Of the soil and climate of Berar, Colonel Cuthbert Davidson, C.B., the Resident at Hyderabad, reports as follows:—

"The soil in West Berar is of a rich, black loam, and the extremes of heat and cold are not so great there as in many other parts of India.

"In East Berar the soil is of all descriptions—from the deepest black loam to the lightest red soil in the undulating talookas to the south of the district. In the Raichore Doab, if 16 be assumed as representing the different qualities of soil in the district, 10 may be taken as black soil or fitted for the cultivation of cotton. It is of the same nature as the black soil of Berar, but inferior in richness and productiveness. The Raichore Doab has the benefit of two monsoons, but only the end of each, and there is constantly a deficiency of rain. The climate is mild and pleasant, with the exception of three or four months in the hot season."

The comparative cost and profit of cotton and other cultivation in Berar are estimated as follows:—

"From inquiries made of the cultivators, it appears that by growing cotton on good and suitable soil, which is called *naguttee*, some considerable profit is realized. It is, however, to be observed that the above remark is only applicable in cases where the cultivation is carried on by the ryots' own means and appliances; when they have recourse to the 'usurer' little or no profit accrues to themselves.

Statement showing the expense of cultivating one beegah of new land with cotton, and its yield, in Berar.

No.	DETAIL OF EXPENSE.	Rs. A.
	Government land tax.....	2 0
4	ploughings, at Rs. 2 each	8 0
	Digging up stumps.....	5 0
	Clod-crushing	1 8
	Levelling the ground	1 0
1	maund of 40 seers cotton seed.....	0 8
	Sowing the seed with the drill plough	2 0
	Weeding seven times, at one rupee	7 0
	Hoeing	2 0
	Wages for gathering cotton	4 0
	Carriage to local market	1 0
		Total...Rs. 34 0

YIELD.

½ candy, or 30 maunds of cotton, price varies from Rs. 30, Rs. 36-8 to.....Rs. 45 0

"Remarks.—The seed is sown between the 15th of June and the 3rd of July, and the cotton gathered in six months from the time of sowing.

"It is to be observed that if the labour and cattle employed are the ryot's own he is benefited by the cultivation; if they are paid for, and the cultivation carried on by borrowed means, he derives little or no advantages whatever.

° Royle, Culture of Cotton, pages 325 and 326.

† Revenue Department, No. 390 of 1861.

HYDERABAD AFFAIRS.

" *Estimate of cost and yield of three beegahs of cultivated land sown with Toor.*

No.	DETAIL OF EXPENSE.	Rs. A.
	Government land tax	6 0
	Levelling the ground	2 0
	Cutting bushes	0 4
16	seers of seed	0 11
	Weeding four times, at one rupee	4 0
	Sweeping off worms from plants	1 12
6	coolies for cutting the crop	1 2
	Carriage to the barn	2 0
	Husking	1 4
	Winnowing	1 8
Total...Rs.		20 9

YIELD.

2	candies of toor, price Rs. 14 to	15 0
	Stalks, husks, &c.	9 11
Total...Rs.		24 11

" *Estimate of cost and yield of three beegahs of cultivated land sown with Jowaree.*

No.	DETAIL OF EXPENSE.	Rs. A.
	Government land tax, at Rs. 2 per beegah	6 0
	Levelling the ground	2 0
	Cutting bushes	0 4
14	seers of seed	0 8
	Drilling the seed	2 0
	Weeding five times, at one rupee	5 0
	Storing	2 0
	Pruning	0 8
	Cutting the crop	1 2
	Carriage to the barn	3 0
	Treading the grain	0 12
	Winnowing	1 8
Total...Rs.		24 10

YIELD.

3	candies of jowaree, price Rs. 16 to	17 0
100	bundles of stalks, at Rs. 3 per 100	12 0
Total...Rs.		29 0

" *Remarks.*—Estimate of moong or green gram same as jowaree, with this exception, that it produces no kurbee or stalks, but husks to the value of one rupee.

" *Estimate of cost and yield of three beegahs of cultivated land sown with Wheat and Linseed respectively*

No.	DETAIL OF EXPENSE.	Rs. A.
	Government land tax	6 0
	Levelling, &c., seven times	7 0
	Cutting bushes	0 6
80	seers of seed (wheat)	3 8
16	seers of linseed	1 4
	Drilling the seed	2 0
	Reaping, paid in kind .....	...
	Carriage to barn	3 0
	Threshing, paid in kind .....	...
	Carriage to market	1 0
Total...Rs.		24 2

No.	YIELD.	Rs. A.
2½	candies of wheat or linseed, price Rs. 25 to	26 0
	Husks, &c.	2 0
Total...Rs.		28 0

" *Remarks.*—Sown during Deewallee and Dussurah, or in November, and comes to maturity in six months.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

" Estimate of cost and yield of three beegahs of cultivated land sown with Chenna and Lak.

No.	DETAIL OF EXPENSE.	Rs.	A.
	Government land tax	6	0
	Clearing bushes	0	6
	Levelling the ground 5 times	5	0
112	seers of seed	5	0
	Drilling the seed	2	0
	Reaping, paid in kind .....	...	...
	Carriage to barn	3	0
	Threshing, paid in kind .....	...	...
	Carriage to market	1	0
		Total...	Rs. 22 6
YIELD.			
2½	candies of chenna or lak, price Rs. 22-8 to	23	12
	Husks, &c.	2	0
		Total...	Rs. 25 12

" These statements fail to impress upon one that farming is at all a profitable employment when under the necessity of engaging hired labourers ; but the cultivators are generally in possession of their own bullocks, ploughs, &c., and many of them have large families, so the price set down as hire under the several heads enumerated in the above statement of cost must be included in the farmer's profits. Their cattle also cost them little or nothing, as after the cotton has been cleaned the seed is available as food for them ; and when jowaree and other grains are sown they invariably retain sufficient forage for the consumption of their cattle for the year. The remainder is sometimes sold, and very profitably so, when any highroad passes near their villages ; what remains at the end of the year is scattered about the fields, burnt, and made use of for manure."*

Although these calculations seem to be reasonable and trustworthy, with the exception of the estimated yield of seed cotton, which is probably excessive, it is necessary to state that they are not authoritatively advanced.

The only step which Government have yet taken to improve the cultivation of cotton in these districts has been the distribution of exotic seed to the cultivators. The following is a brief account of the experiments made with the various kinds :—

At the close of 1857 a supply of 4½ bags of Egyptian seed was sent from the Government of India to Colonel Davidson.

East Berar.—A portion of the Egyptian seed was sown in a garden at Mursee, " but the plants, though irrigated, withered a few days after they had sprung up. Another small quantity was tried by the Deputy Commissioner in his garden at Hingolee, but it likewise failed—only one or two seeds sprouted, and then died off. Other trials were also made, but, as a general rule, afforded no good result."

West Berar.—"The report from West Berar of the sowing of the seed from this supply shows that the trials there also ended in a similar result."

Dharaseo District.—"The Deputy Commissioner of the Dharaseo district states that, from the reports received by him from the tchsildars, the plants died when they were a few inches high ; and that trials made by himself in his garden were never successful ; that about three-fourths of an acre were sown, but, probably from the seed being old, did not come up very regularly ; but the bushes were healthy, and attained a height of from four to five feet. The produce in clean cotton was 31 lbs., which gives about 100 lbs. to an acre : the crop would have been larger had the plants come up regularly. The soil is stated to have been a deep rich one, thrown up by a river, and was manured. Half the crop was watered several times, but there did not appear to be any material difference between the irrigated and unirrigated plants. The proportion of seed to cotton was about two to one. The cotton plants were left in the ground, and the produce in the year 1859 promised to be larger than that of the preceding year. Some of the seed grown in 1858 was sown at the commencement of the monsoon

* The *Englishman*, 8th October 1861.

in 1859, and, in consequence of its being fresh, the whole of it germinated. The plants were about two feet high, and the crop promised to be a good one."

The Deputy Commissioner stated—

"The report from the Raichore Doab shows that the results of the sowing of first supply in that district has not been satisfactory."

At the beginning of 1859 a second supply of Egyptian and Brazilian cotton seed was received from Calcutta, and the following report was given, by the Officiating Deputy Commissioner, of the experiments in East Berar in 1859-60 :—

"The two descriptions of seed which were forwarded for experiment last season reached the district in good order about the commencement of the monsoon; ground had been previously prepared in different localities, and of different descriptions, so that every precaution had been taken for ensuring the seed a fair trial on its arrival.

"The results, I have no doubt, would have been more favourable had the seed reached the district a month earlier than it did.

—"The monsoon rains set in early, and the season at first promised to be a favourable one, but the seed did not reach till after the first fall of rain. Long breaks in the monsoon took place, and the crops, from want of sufficient moisture, did not attain their average size, the cotton generally being more than usually stunted.

"The Brazilian cotton seed failed in a very unaccountable way. The plants sprang up well, and looked very healthy until they were about six inches high, when they became blighted and withered away.

"The Egyptian cotton seed has been more successful; but some plants in the same field having succeeded while others failed leads to the impression that the seed was either not all of one season or was not quite fresh; some of the seed succeeded remarkably well, the plants being strong and healthy, nearly four feet high, and bearing very large pods, and not having that degenerated appearance which the cotton has assumed in many places this season.

"I have forwarded to Messrs. Robert Strong & Co., Bombay, for transmission to the Secretary of the Cotton Supply Association at Manchester, two parcels containing five packets of cotton, marked Nos. 1 to 5, each parcel containing one pound of cotton, carefully cleaned and separated from the seed.

"Parcel No. 1 A. contains a specimen of the Egyptian cotton grown in first-class garden land but not irrigated. The plants grew of two heights—three feet and two feet; the pods were one and a half times larger in size than that of the country cotton, but were fewer in number than the pods of the country cotton plants; this is accounted for by the seed having reached a month later, and the plants not having attained their full size in consequence. The plants which grew three feet high had from 15 to 22 pods each; the two-foot plants had only from eight to ten. The experimental cotton produced on an average 10 to 12 pods less than the native cotton in the same locality. The smallest quantity of pods may be well accounted for by the seed arriving rather late, and two descriptions of plants would seem to show that the seed was mixed.

"No. 2 A. is a specimen of Egyptian cotton from first-class black soil. The field in which this was tried was one-half manured, and one-half without manure. In the manured portion the cotton grew three feet high, and in the other portion two feet. The pods of the large plants were, as in the former case, one and a half times larger than the country cotton pods, and each plant had from 15 to 20 pods; the smaller plants became blighted, and bore only eight or ten small pods each; the large plants produced about ten pods fewer than the native cotton under similar circumstances. The report which accompanies this specimen from the district shows that the seed did not come up regularly; in many places not at all. Of seven or eight villages in which it was tried, it succeeded in one only, and there very partially.

"No. 3 A. is a specimen grown in second-class black soil. The plants attained the heights of two and three feet; the plants bore, on the average, the same

number of pods as the native cotton grown in similar situations ; but the report states that the plants had a dried-up appearance ; the large plants had from five to fifteen, and the smaller from three to ten pods ; but the pods were one and a half times larger than those of the country cotton. In one instance an eighth part of the seed sown succeeded, the rest failed entirely ; while in another the plants came up well ; but when the pods filled half of them fell off the plant.

" No. 4 A. is a specimen of the cotton of the country known as 'jherree' ; the pods are heavier than those of the other country cotton, known as 'bhunnee,' and the cotton is rather whiter, and fetches a little higher price in the market.

" No. 5 A. is a specimen of the country cotton known as 'bhunnee,' and which is the sort most cultivated in the south of the district. The seed is sown in the commencement of the rains, and the crop is ready in the month of November.

" Another point which may be worthy of notice is that the 'bhunnee' cotton produces a great quantity of seed to a very small quantity of cotton. On weighing a quantity of this description previous to and after it had been separated from the seed, it was found that the seed weighed three times as much as the cotton, or that four pounds' weight of cotton taken from the plant produced three pounds of seed and one pound of cotton.

" The same experiment was tried with 'jherree' cotton and with Egyptian cotton, and it was found that three pounds taken from the plant produced on an average about two pounds of seed to one pound of cotton.

" From the experiments that have been made this year in this district, I think that were good fresh Egyptian seed to be imported at the proper time, so as to reach the district about the end of April, much better results might be expected than what have been above described.

" The cotton produced from the Egyptian seed appears to be of a superior quality to that grown in Berar, but it would require more attention paid to its cultivation than the natives pay to the indigenous cotton.

" Three cotton gins, known as Dunlop's gins, were received along with the cotton seed. It was some time before they could be properly adjusted, and when put into working order and tried the results were by no means satisfactory. The gin frequently gets jammed, and all who have seen the cotton which has passed through the gin state that the staple has been spoiled ; and the opinion of all the natives who saw it was that if they had their cotton passed through that gin it would not fetch nearly so much in the market as when prepared by the native machines now in use."

The following report, dated 17th March 1860, was given of the experiment with exotic seed in West Berar, by the Assistant Commissioner :—

" The following descriptions of cotton seed were received for experiment in this district :—

" *Brazilian, Egyptian.*—From the Government of India.

" *New Orleans.*—From the Manchester Cotton Supply Association.

" *New Orleans.*—From Dharwar.

" The district officers, through whom the above descriptions of seed were supplied to the cultivators, report that with the exception of the seed last mentioned only a few of the New Orleans seed received from England came up, but soon dried up. Small portions of the above descriptions of seed were also sown under my own observation, and that of Lieutenant Bushby, and I have further satisfied myself by testing the seed at different periods, the result being alike in every instance ; and I am, therefore, of opinion that the whole supply had lost its germinating quality, and hence its complete failure in every part of the district.

" The seed from Dharwar last mentioned, and which sprang up, was received from the Collector of Dharwar in September 1858, and, as the season for sowing cotton had passed, and as cotton seed that is sown out of season rarely succeeds, it was distributed in the talookas in May last.

" The accounts received from all the talookas where the Dharwar cotton seed was tried give the following particulars :—That the seed sprang up, in seven or eight days, and appeared apparently healthy ; that in about three months the

plants were in blossom ; that each plant bore three or four pods, and attained the height of about two feet ; that after the first picking all the plants withered and dried up, and that the average quantity of cotton obtained per beegah was about 40 lbs.

"The seed was tried in both descriptions of soil in which the 'jherree' and 'bhunnee' sorts of cotton are grown in the district, and therefore may be said to have had a fair trial. But, notwithstanding, it is found that the quantity of cotton produced per beegah is only equal to about one-third of what is produced from the cotton seed indigenous to Berar, which fact greatly tends to discourage the introduction of this new cotton into this district. It is also the opinion of the ryots that the black soil of Berar is not well suited to the production of foreign cotton, as the plants generally present a stunted and poor appearance.

"I beg to send four small bales, containing samples of the produce from Dharwar cotton seed, as also of 'jherree' and 'bhunnee' cotton indigenous to Berar, as per margin :—

— "No. 1 B.—Cotton produced at Akote, from New Orleans seed received from Dharwar.

"No. 2 B.—Cotton produced at Dewulghat, from New Orleans seed received from Dharwar.

"No. 3 B.—Bhunnee cotton, grown at Dewulghat.

"No. 4 B.—Jherree cotton, grown at Akote.

"The average price of the Dharwar cotton in this district is two annas and six pies per pound, which is the same as for the description of cotton indigenous to Berar. The Dharwar cotton, it is admitted by all, is superior to that of Berar, but, as the quantity produced is small, no proper value is fixed on it."

Colonel Davidson states : "The experiment in the Dharaseo district with the seed of the Sind supply was likewise a failure."

He continues—

"No special report has been received from the Raichore Doab of the result of the sowings of the Brazilian cotton seed of the second supply ; but from a report by Captain Meadows Taylor, Deputy Commissioner of that district, it would appear that the Egyptian cotton seed succeeded remarkably well. A good deal of valuable seed, he states, will be saved this year (1860), and will be distributed for further trial. The cotton grown is fine in quality, and the plant grows and bears well, with every prospect of improvement. The Egyptian cotton seed, Captain Taylor observes, grows better, and is more productive, than New Orleans in the ordinary black soil. Of ten seers of cotton of this description produced in the Raichore Doab the yield when ginned was two and a half seers of cotton and seven and a half seers of seed, which is an average result.

"The following, however, taken from a report by Mr. Ricketts, Assistant Commissioner in charge of the Raichore Doab, of a subsequent date, is not so satisfactory :—

"He observes that such experiments as those reported by Captain Taylor are not safe criterions to go by ; that the yield in these isolated cases, where skill and labour are expended, is astonishing, not only in the case of exotic but also of indigenous cotton ; but these instances, though they may stimulate the ryots to follow the example set them, are perhaps useless in reporting on a staple product, which is to be grown and sold by the ryots in their own way. Mr. Ricketts' report, in fact, shows that the results of the experiments in regard to the New Orleans cotton seed have been more unfavourable than those of the preceding year, and that the Egyptian and Sea Island cotton was almost a total failure ; but this want of success is attributed chiefly to the want of rain in the Raichore Doab during the year 1859. In a further report received from Mr. Ricketts that officer states that the Egyptian and Brazilian cotton seed having been put down only experimentally, and in isolated parts of the district, no average statement of selling price can be given with any degree of certainty ; that specimens grown in the cantonment of Lingasooogoor appear similar, even if not superior in fibre and staple, to New Orleans, though the general colour does not appear to be so good,

as irrigation seems to discolour and blight a certain proportion of the pods. The selling price, however, he states, may be calculated at from one anna and seven pies to one anna and eight pies per lb.

"The report from the Raichore Doab shows that none of the New Orleans cotton seed received from Manchester vegetated in that district. The Deputy Commissioner, however, states that the average selling price of New Orleans cotton in the Raichore Doab, grown from seed procured by the ryots from Dharwar, is about five rupees per candy above the selling price of indigenous cotton. More extended sowings of exotic cotton will be made this year in the Government gardens and by tehsildars, so as to retain the interest in the matter, and keep in hand a good supply of seed.

"The Deputy Commissioner, Dharaseo district, reports that the New Orleans cotton seed received from Manchester has entirely failed in that division. He states that he had part of a garden at Nuldroog sown with it, but a small number only of the seeds germinated. The plants that did come up were stunted, and a very small quantity of cotton was produced. It seems clear, he states, that the seed was old, and when endeavouring to introduce a new species of cotton it is of the greatest importance that the seed should be good, for if it is not it will be difficult to induce the ryots to expend their labour on it a second time. The Deputy Commissioner promises to forward a specimen of the cotton from this growth.

"I would here beg to take the opportunity of submitting the result of a trial made by Captain Meadows Taylor in the Shorapore district, in 1859, with New Orleans cotton seed obtained by him from Dharwar.

"Captain Taylor states that with this cotton he has tried a different soil, and a different period of sowing, than obtains in Dharwar, and it appears to him that the yield is more satisfactory, and the staple better and softer. In Dharwar this cotton is grown upon black soil exclusively, and sown in September. Captain Taylor's trial of the seed in this instance was in very ordinary red granite soil, of a sandy quality, unmanured, and irrigated, and was sown in June. The fall of rain, he observes, at Shorapore was unusually scanty, yet the plants were healthy and bore freely.

"The cotton was gathered as it ripened, and was cleaned from the seed by a common native churka. It has not been specially cleared or picked.

"It will, he states, be of great importance to the ryots in the Shorapore district if it is found that the New Orleans cotton grows and bears well on the red soil, in which the indigenous cotton does not answer at all. In the present instance, the sowings were of very limited extent, but he has no doubt that they can be very widely spread if the result continues as it now promises.

"Captain Taylor forwarded a sample of this cotton to Messrs. Robert Strong & Co., Bombay, for transmission to the Manchester Cotton Supply Association, on which the following opinion was given by them:—

"The sample arrived this morning, and has been examined by two other parties of experience in the cotton trade, as well as by ourselves, and the conclusion come to is that this sample is all that could be desired by those interested in promoting the cultivation of good cotton in this country, and it is believed that any quantity of this quality would find a ready sale in Liverpool at the full rates for fair Orleans, at present 7½d. to 8d. per lb. We have never had an opportunity of comparing this sample with cotton grown in black soil, but we are inclined to believe that the mode of culture adopted by you is peculiarly suited to this description of seed, no sample of New Orleans growth in this country having been seen here to equal yours. We may add that one of the parties above referred to is the Secretary to the Chamber of Commerce, who has been paying great attention to the results of the cultivation of exotic cotton. It was remarked, in reference to the cleaning of your sample, that the churka had been very successful, whereas Dr. Forbes reports the churka to be entirely useless for cleaning American seed cotton. We mention this that you may observe if there is any greater difficulty in extracting the seed by this machine from this class of cotton than from the indigenous varieties."

HYDERABAD AFFAIRS.

"In forwarding the above opinion, Captain Taylor adds : As far as this goes, this is the most satisfactory experiment he has yet made in exotic cotton, and that he will do his best to extend the cultivation next year in red or *mussul* soil, which he is strongly inclined to think is much more favourable to the culture of the New Orleans variety than black soil."^{*}

The following is the report which the Manchester Cotton Supply Association gave upon the samples received :—

When received, and description.	Mark.	Our No.	Remarks of Valuers.	Valuation.
<i>Dharasee</i> ; from Egyptian seed sent to the district in 1858.	No. 1	26	Colour rather brown; rather soft in staple, but silky, and pretty strong.	<i>d.</i> 7½ per lb.
From seed obtained from the above crop.	No. 2	27	Colour very brown, with seed and dirt; staple fine and strong, but not long.	6½ & 7
From New Orleans seed sent by this Association.	No. 3	28	Colour rather brown; staple irregular, and tender.	4½
<i>West Berar</i> .—Cotton produced at Akote from New Orleans seed received from Dharwar.	No. 1B	29	White, with brown leaf; staple even, and pretty strong.	5 to 5½
Ditto.—Cotton produced at Devulghat from ditto.	No. 2B	30	Whitish, pretty clean; staple short, and tender.	4½ to 4¾
Ditto.—Bhunnec, grown at Devulghat.	No. 3B	31	Colour yellow; brown leaf; coarse, open staple.	4 to 4½
Ditto.—Jherree cotton, grown at Akote.	No. 4B	32	Colour yellow; brown leaf; staple very short and very tender.	3½
<i>Dharasee</i> .—Egyptian cotton.	No. 1C	25	Saw-ginned, cleaned; light-brown colour; hard staple, rather short; much nep, and some waste.	5
Indigenous cotton, Raichore Doab.	No. 1D	38	Bright-yellow colour; staple short, very weak, but even.	5½ to 5¾
New Orleans cotton, from Raichore Doab.	No. 2D	39	Colour brown, over-ginned; clean, short, weak, and coarse in staple.	3½ to 3¾
<i>Shorapore</i> .—New Orleans cotton, grown in red granite soil	No. 1E	40	Colour bright and beautiful, clean, and well got up; staple fine and strong, but mixed with a deal of short.	8 to 8½

In forwarding this report, the Cotton Supply Association wrote to Colonel Davidson, regarding the samples, as follows :—

"Some of these samples have elicited great surprise and admiration from their excellent quality, and their suitability to the special wants of our market, more especially those marked with our numbers 40, 26, 27, and 38. Numbers 40 and 38 are just the class of cottons which, if imported in any quantity into Liverpool, will soon raise the character of India as a cotton-producing country. It is of the utmost importance that every effort be made to encourage the export of these cottons, which are well cleaned, and in fact No. 40 is superior to any Indian cotton *we have ever seen*. No. 26 is also deserving of every praise and encouragement."[†]

In October 1861 Major Spence, Judicial Commissioner, reported the result of experiments with American seed and guano received from the Agent of the Cotton Supply Association at Nagpore. The seed was planted in many places with considerable care. A great portion never came up, and where it did germinate the plants soon withered. "The Deputy Commissioner of Nagpore reported that the seed tried by him generally failed altogether, and although a small quantity germinated it never attained any growth, while the portion of this, to which guano was applied was burnt up by it."[‡]

Colonel Davidson, in March 1861, stated the number of acres cultivated with cotton in the various districts as follows :—

West Berar	354,805 acres.
East Berar ..	221,909 do.
Raichore Doab	243,795 do.

The report of the estimated produce then published was manifestly incorrect,

^{*} Colonel Davidson's Report, May 1860.

[†] Revenue Department, General No. 1285, 1860, Department No. 337.

[‡] Revenue Department, No. 967 of 1861.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

and Colonel Davidson not only called attention to the remarkable discrepancy in the results stated, but instituted inquiries, with a view to ascertaining the actual statistics of the cultivation.

In October 1861, Captain W. Cadell, the Assistant Commissioner, then in charge, furnished the following more accurate information : —

	West Berar.	East Berar.
Yield per acre of uncleaned cotton	207 lbs.	192 lbs.
Yield per acre of cleaned cotton.....	60 lbs	52 lbs.
Price of cotton per 100 lbs.....	Rs. 11 7 0	Rs. 9 12 8
Cost of separating 1 lb. of cotton from the seed.	„ 0 0 4	„ 0 0 2½

Colonel Davidson states, “ The yield of 5,574 acres of New Orleans cotton sown in the Raichore Doab as a dry crop in 1859 was 436,190 lbs. in the seed, the third of which, or 145,396 lbs., would represent the amount of cleaned cotton. The yield per acre is estimated at an average of 78 lb. with the seed, or 26 lbs. cleaned, valued at Rs. 2-10-6 (or 5s. 3¾d.), either with or without the seeds, as the amount of seed may be considered but equivalent to the value of the labour required to remove it. The year in which the above experiment was made (1860-61) was a very unfavourable one, as it has been known that in a fair monsoon the produce of an acre of indigenous cotton sold for Rs. 10 (£1). It is worthy of note here that in a patch of dry ground sown in the Doab by Captain Meadows Taylor, the Deputy Commissioner, with acclimated Dharwar New Orleans seed, the produce per acre was 465 lbs. of uncleaned, or 155 lbs. of cleaned cotton, the value of which on the spot is estimated at Rs. 16-6-0 (£1-12-9).”

Regarding transit Colonel Davidson reports, “ In the province of West Berar and in the Raichore Doab the cotton is conveyed on carts and bullocks to the port of shipment, the cost of transit to Bombay being estimated in West Berar at 4 to 6 pies per lb., and in East Berar at 8 pies, or about a penny. In the Doab the cost of conveying cotton to Compta is computed at from 4 to 6 pies per lb. if carried on bullocks, and a pie or two less per lb. if conveyed in carts. The railway through Berar and to Moodgul in the Raichore Doab will necessarily facilitate the transmission of cotton to the coast to a very great extent.”

Mr. Robert Watson states that cotton costing 1¾d.-2¼d. per lb. in Berar incurs an expense of about 1d. per lb. in transit to Coconada, the shipping port of the Godavery.

Colonel Davidson gives the following information regarding cotton-cleaning:—

“ The churka is the only machine in use in Berar for cleaning cotton. Saw-gins have been supplied, but, the machinery not being understood, they are not used. In the Raichore Doab three Dharwar gins received from Dr. Forbes have been in full use for two years. Two Macarthy gins were also forwarded to that district, but they will not work, and are not considered simple enough. There are no presses in use in any of the districts. The cotton is packed in bales, and trodden down by the feet.

“ The cost of cleaning cotton by the churka, or other machine used, is thus reported—

	per lb.
West Berar	½ pie
East Berar	4 pies
Raichore Doab	2 pies
Raichore Doab	1 pie with the Dharwar gin.

“ Upon the general question of extending and improving the trade and commerce of the assigned districts, I would first notice that the cotton-gins referred to by you appear to have gained favour in West Berar, and it is believed that they would obtain a sale, and that the people would willingly give cotton in exchange for them, several applications having been made by natives to be supplied with them. In East Berar the Dunlop gins sent are lying unused, as the people are of opinion that they would tear the staple, and that cotton cleaned by them would not obtain the full price. It is considered advisable that a few of the small cottage

gins should be forwarded for experiment. The Macarthy gins have not been found to answer, and the Dharwar gins are only suitable for central marts."

Although there are considerable tracts of waste land still to be brought under cultivation, Colonel Davidson gives an unfavourable report of the prospects for European colonization. He states—

"The extent of waste land in West Berar is estimated at 1,648,194 acres, and in the Raichore Doab at 550,000 acres of dry land, of which 100,000 may be reckoned as fitted for cotton cultivation. There are also in the last-named district about 6,028 acres of waste wet lands. In East Berar there is a large extent of waste land, but a report upon it has not yet reached me, and an estimate cannot be readily formed as the boundaries of this district are undergoing modification.

"As has been already remarked, our great want in Berar, especially in its eastern division, is population. The impetus that will be given to trade when the navigation of the Godavery is opened out, and our eastern frontier is joined with the western ports by the railway, the completion of which in 1862 is confidently expected, will invite capital; and that population invariably follows capital is known to be an unerring law. We may, therefore, reasonably look forward to a large extent of waste land, at no very distant period, being brought under profitable cultivation.

"European colonization is another important question; but I have already expressed my opinion to the Government of India that we are here met by serious obstacles. Among the first of them is the consideration that our relations towards the assigned districts do not permit us to sanction the permanent alienation of the proprietary right in a single acre of the soil. And that nothing but the right to do this, and our disposition to avail ourselves of that right, would suffice to attract European capital and enterprise, is abundantly obvious. The revenues of these districts are assigned to us for a specific purpose by the Nizam; the districts themselves are not ceded to us, temporarily or in perpetuity, and it would be as unfair in us to tender as it is improbable that European capitalists would accept leases for the fulfilment of which we could at the best propose a very imperfect and conditional guarantee. The prospect of rapid and large returns might tempt the adventurous and precipitate, but would have little attraction for the cool and sagacious speculator, who could thoroughly appreciate the want of permanency and insecurity of his position.

"Another objection, also elsewhere advanced by me, is the climate, which, especially in the valley of Berar, is decidedly unfavourable to the European constitution."

The Deputy Commissioner of the Raichore Doab thus estimates the extent and nature of the waste lands in that district :—

Statement exhibiting the estimated amount of Waste Lands in the KHALSA (Government) VILLAGES of the RAICHORE DOAB which can be cultivated and are at the disposal of Government.

NAMES OF TALOOKAR.	DRY ACRES.				WET ACRES.			TOTAL OF ACRES.
	Black Soil.	Red Soil.	Mixed Soil.	Total.	Rice Land.	Garden Land.	Total.	
	Acres. C. A.	Acres C. A.	Acres C. A.	Acres C. A.	Acres C. A.	Acres C. A.	Acres C. A.	
1. Kooshtagee	40,903 33 0	32,383 37 12	5,695 22 0	78,983 12 12	160 20 0	69 4 12	229 24 12	79,212 37 8
2. Copal	39,844 0 0	22,135 24 4	975 3 4	62,954 27 8	185 35 12	49 25 12	235 21 0	63,190 9 0
3. Raichore	48,022 14 0	52,559 31 0	744 10 4	101,326 15 4	2,600 29 4	277 18 8	2,878 7 12	104,204 23 0
4. Gungawutty	29,107 37 12	25,654 32 8	2,802 19 8	57,565 9 12	1,345 33 12	127 27 4	1 473 21 0	59,038 30 12
5. Liugsoogoor	4,626 0 12	19,504 16 8	322 0 0	24,452 16 4	128 0 0	18 0 0	146 0 0	24,598 16 4
6. Sindnoor	22,060 39 0	1,367 15 12	7,461 34 0	30,890 8 12	....	14 23 4	14 23 4	30,904 32 0
7. Manvee	63,826 9 0	19,083 27 12	18 15 0	82,928 11 12	7 0 0	38 0 0	45 0 0	82,973 11 12
8. Deodroog	42,776 20 8	22,395 26 8	74 0 0	65,246 7 0	47 35 0	110 21 0	158 16 0	65,404 23 0
9. Alpoor	127 9 0	1,249 29 0	....	1,376 38 0	7 0 0	28 0 0	35 0 0	1,411 38 0
Total..	291,295 3 0	196,835 0 0	18,093 24 0	505,723 27 0	4,482 33 12	733 0 8	5,215 34 4	510,930 21 4

M. TAYLOR, Deputy Commissioner, Raichore Doab.
Deputy Commissioner's Office, 15th June 1859.

The following important memorandum on the subject of roads in the province was prepared in June 1861, by Major Elliott, for the Government of India :—

“Before proceeding to consider the detail of a scheme of roads for the province, it appears desirable to say a few words on the territory itself. The province is of a triangular form, its extreme length from north to south being about 382 miles, and its breadth in the widest part of it 310 miles, exclusive of the detached principality of Kharona, or Kalahundee, on the east, which is 92 miles broad by 90 in length. Nagpore is bounded on the north by the districts of Hoshungabad, Nursingpore, Seonee, and Mundlah, belonging to the Jubbulpore division, and the Sirgoojah Rajah's talookas. On the east by a portion of the Sirgoojah talookas and Ramgurb, and by the numerous petty states belonging to Chota Nagpore and Sumbhulpore; by a tract of about 30 miles belonging to independent hill tribes (Khonds) in the district of Ganjam, in the Madras Presidency, and by the territory of Jeypore, also under the Madras Government. On the south, by the river Godavery, the talooka of Elmarwar belonging to the Nizam of Hyderabad, and by portion of the Wurngunga, Pranheta, and Wurdah rivers. On the south-west and west by the river Wurdah, which divides it from the Nizam's dominions, and by the district of East Berar, and portions of Batool and Hoshungabad, in the Jubbulpore division.

“The first step in arranging a scheme of roads is to classify them in the order of their importance, and this may be done under the three headings—IMPERIAL, PROVINCIAL, and DISTRICT.

“The imperial lines are those in the construction and maintenance of which the interests of the State preponderate, as lines of military communication, or for advancing the commercial interests of India generally, the provincial lines standing to the province, and the district lines to the several districts, in the same relation as the imperial lines do to the empire at large, each being intended in its degree for the improvement of the country, and the better development of its resources.

“The cost of the construction of the imperial lines would be borne by the imperial revenues of India, the cost of the provincial lines being defrayed by the imperial and local revenues jointly, in proportion to their general or local importance, leaving the outlay required for district lines to be borne by local funds alone, save in instances where imperial projects may be materially furthered and expedited, when the imperial funds might be charged with a quota of the expenditure.

“A glance at the map of India will show that, from the position of Nagpore, with reference to the four Presidencies of Bengal and Bombay, Madras and the North-Western Provinces, the main imperial line must be the one known as the Great Deccan Road, which, leaving the Grand Trunk Road from Calcutta to Lahore at Benares, crosses the Ganges near Mirzapore, and passes, *via* Jubbulpore and Seonee, through Nagpore to Jaulnah, Ahmednuggur, and Poona, connecting Calcutta with Bombay. This line enters the Nagpore territory about 49 miles south of Seonee, and passing through the military cantonment of Kamptee and the civil station of Seetabaldee (the head-quarters of the province) leaves it at the river Wurdah, a few miles to the westward of Nachengaum, having a course through the province of about 104 miles in length.

“The next in importance is the southern line, commencing, it may be said, at Agra, and passing *via* Gwalior and Jhansi to Saugor, whence it should be continued through Nursingpore, entering this territory in the Chindwarra district above the Ghauts, and from Chindwarra proceeding by Nagpore and Hingunghat towards Hyderabad and Madras, thus connecting the Punjab and Delhi, through Central India, with the Southern Presidency. This road might be called the Great Southern Road of Central India.

“The third imperial line would be that traversing the province from east to west, starting from Calcutta and passing *via* Midnapoor, Cattaek, and Sumbhalpoor, through Raepoor, Bhundara, and Nagpore, towards Oomrawuttee and Ellichpoor, in Eastern Berar. This line joins the Great Deccan Road at Nagpore, and in conjunction with it was prior to 1853 the postal line between Calcutta and

Bombay. Since 1853 this line has been superseded by the one *viâ* Mirzapore and Jubbulpore, though a foot dâk is maintained between Calcutta and Nagpore, along the old post road, for the convenience of the residents of Sumbhulpore and Raepoor, &c.

"We now come to the provincial lines of road. The first should be a continuation of the road between Jubbulpore and Mundlah, over either the Rajadhar or Chilpee ghauts into Chuttesgurh, with a road from its sudder station of Raepoor to the out-station of Belaspoor, Ruttonpoor, and the northern boundary. Again, southward there should be a road from Raepoor, through the Busten territory (a tributary of Nagpore), to Sirancha, situated on the Pranheta, near the navigable head of the Godavery, and the site selected for the head-quarters of the Deputy Commissioner in charge of the six talookas on the left bank of that river, recently ceded by His Highness the Nizam. Sirancha should also be connected with the southern imperial line by a branch *viâ* Ahere and Chanda to Wurrarah, about thirty miles south of Hingunghat.

"Another road, branching from the east and west (imperial) line, should start from some point (to be determined on hereafter) east of Raepoor, and passing through the territory of the Rajah of Kharondh (Kalchund in the map) be carried through the Jeypoor estate, belonging to the Madras Presidency, to the sea-coast, thus connecting this province with the ports on the eastern coast to the south of Ganjan. This appears, from a report by Captain Saxton, to be the most direct and feasible line for the residents of the eastern portion of this province to reach the coast, and its importance in a commercial point of view should not be lost sight of.

"The next line is one from Seonee (Jubbulpore division) on the Great Deccan Road, through our northern district to Baitool (also in the Jubbulpore division), for the purpose of connecting Chindwarra with Jubbulpore on the north-east and Bhopal and Indore through Hoshungabad on the north-west. This line would have about 85 miles of its length in the Nagpore province. There is another road which though entirely within the limits of the Nagpore district is provincial if not imperial in importance, and should be constructed. It runs between the town of Hingunghat on the southern (imperial) line and Nachengauum on the Great Deccan line, near to which latter place there is to be a railway station. Hingunghat is a very large cotton mart, as already reported. The distance between Hingunghat and the Wurdah along this line is about 45 miles.

"Two short lines from the cantonment of Kamptee remain to be noticed—the one to Patunsaongeh, a distance of 14 miles, connecting the cantonment with the southern imperial line towards Chindwarra and the north, and the other to Goomtarah, about 14 miles, to connect Kamptee with the east and west imperial lines towards Bhundara. These two roads are required mainly on military grounds to facilitate the march of troops from the head-quarters station of Kamptee towards the districts east—Bhundara and Raepoor, and north—Chindwarra, Baitool, Hoshungabad, &c.

"With these the list of provincial requirements may be closed. Of the imperial lines the Great Deccan and southern roads are already under construction, the first-named being a first-class road, and the other a second-class road on a first-class basis. The eastern line is also sanctioned, and two sections, comprising the distance between Sectabuldee and Bhundara, are under construction. This is a second-class road. The remaining provincial lines should all be of the second class with the exception probably of the proposed line between the Raepoor district and the eastern coast, for which a less expensive class of road might in the first instance be found sufficient.

"The extent to which these lines of road will be affected by the line of railway now in progress from Bombay to Nagpore by Oomrawuttee, and through the valley of the Nerbudda with a branch to Jubbulpore, and eventually to the Ganges, must be considered.

"The only line of road that will be in any way affected by the rail is the Great Deccan Road, and this only very partially. Beyond the limits of this

province, that is, from Jubbulpoor to Mirzapoor, the rail and the road, from their proximity, may be viewed as antagonistic by those who consider a good road along a line of railway to be unnecessary. But between Jubbulpoor and Nagpore, a distance of 160 miles, there is no rail or branch rail in contemplation, whilst the natural difficulties of the country between these two points make it improbable that any attempt to connect them by rail will ever be made. From Nagpore, however, westward as far as the boundary of the province near Nachengaum, the road and the rail will run side by side, but here any railway between them will terminate, the rail turning to the north-west towards Oomrawuttee into Khandeish, while the road continues on its course to the southward of west in the direction of Jaulnah, Aurungabad, Ahmednuggur, and Poona, at which latter place it meets a branch line of railway connecting that station with Bombay. In a military point of view, therefore, the importance of the Great Deccan Road in this province ought not to be materially lessened by the introduction of the rail, for it will still be required to maintain our communication with Seonee and Jubbulpoor to the north, and with Jaulnah, Aurungabad, Ahmednuggur, and Poona to the west.

"The entire length of the three imperial lines of road within this province may be set down 649 miles; the number of miles of the projected provincial lines is about 762, making a total of 1,412 miles, divided amongst 10 lines, one of which is of the 1st class, eight of the 2nd class, and one of the 3rd class. Estimating for these at our present rates, an outlay of $47\frac{1}{2}$ lacs would be needed for their completion, a portion of which would be borne by the local funds.

"Of the district lines, those connecting the several tehseeldarces with the sudder stations of their respective districts and with each other are the first in importance, the next being the opening of cross lines to connect the tehseeldarces and the principal marts and bazaars with the provincial and imperial main lines and with each other. These district lines are too many in number to enumerate here, but their aggregate length may be estimated at 1,000 miles. They may all be of the 4th class, or what are commonly denominated fair-weather roads, and, taking the expenditure needed for their construction, at Rs. 250 a mile, would involve an outlay of Rs. 2,50,000.

"From the foregoing it will be seen that a scheme of roads, such as the one herein sketched, would require funds to the extent of fifty lacs of rupees, supposing present rates to continue;—a large sum certainly, though scarcely more than would be warranted by the results. The annual revenue of the territory amounts to little more than 40 lacs; but with roads of ingress and egress in all directions the increase that might be looked for would, I firmly believe, yield a very handsome return for an expenditure even of half a million."

Captain Cadell states, regarding the means of transit, "No roads have been made as feeders to the railway; but in the valley of Berar carts can traverse the whole country with ease during the dry weather, and even now, when the carts are the means of traffic, most of the Berar cotton gets to Bombay before the monsoon commences."

The G. I. P. Railway will run through the very heart of Berar, and will, doubtless, carry off the greater part of its cotton. A portion of the Nagpore line as far as Sheegaum, which will be the station for Kamgaum, will be opened about the end of 1862, and in the spring of 1863 it is expected that the line will be complete as far as the neighbourhood of Oomrawuttee.

The great rival of the railway will, of course, be the river Godavery. The attention of the Madras Government has for some time been directed to this channel of traffic, and efforts are being made to render it navigable. The following is a summary of the principal facts relative to this river, prepared by Captain Haig, the engineer employed to examine and report upon it:—

"The Godavery, with its tributary the Wurda, has an average slope of 1' 4" per mile up to Chandah, a distance of 360 miles from the sea.

"The next 160 miles of the Wurda have a slope of 1' 7" per mile.

HYDERABAD AFFAIRS.

"The inclination of 150 miles of the Wyne Gunga is the same as that of the Wurda.

"350 miles of the Godavery, above the confluence of the Pranhita, have a slope of 2 feet per mile.

"There is sufficient depth of water in all these rivers for steamers of large size, with a draft of from 3 to 6 feet, during seven months of the year, and for boats of a lighter draught during eight or nine months.

"There is an inexhaustible supply of fuel on the bank.

"The hindrance to navigation now caused by rocks in the bed of the Godavery, Pranhita, and Wurda may be removed at a cost not exceeding £300,000.

"The length of the river that may be thus opened is 823 miles, of which 473 miles will be navigable during three-quarters of the year, and 350 miles during two to three months.

"The 473 miles of river thus opened consists of part of the Godavery, the Pranhita, and Wurda, which together constitute a very direct and uninterrupted line of communication from a point only 30 miles distant from the centre of the cotton district of Berar to the port of Coringa.

"The cost of the work required for the purpose, viz., £300,000, if charged solely to the Godavery, Pranhita, and Wurda, will be at the rate of £618 per mile; but if a share of the expense is borne by the other rivers, which will benefit by it for a shorter period, it will be £480 per mile.

"It is almost certain that 150 miles of the Wyne Gunga, and an equal length of the Godavery above the confluence of the Pranhita, may be rendered navigable for the same period as the other rivers at a proportionate expense.

"The whole length of the river that may thus be opened in the valley of the Godavery for navigation during three-quarters of a year is—

Godavery.....	376 miles,
Pranhita and Wurda.....	247 do.
Wyne Gunga.....	150 do.
Sebbery, Indrawatty, and Pyne Gunga.....	100 do.

Total...873 miles,

and the estimated cost per mile £520.

"The works proposed are of the simplest kind, viz., anicuts of from 15 to 20 feet in height, built on solid rock, locks of ordinary dimensions, and, in one or two instances, a few miles of canal.

"It is proposed to extend the present period of navigation to the whole year, by supplying artificially, by means of reservoirs situate on the head of the different rivers, a sufficient stream of water to afford the supply requisite for navigation during those months when the natural supply is insufficient.

"The climate of the Godavery is not of that very unhealthy character which has been supposed. There is very little or no fever in the hot months. It is more prevalent during the rains and cold season, but may generally be avoided by careful attention to the usual precautions with respect to food, clothing, and shelter.

"An abundant supply of labour is procurable."

One serious drawback to the river route is the fact that at its mouth there is no great market, and no very commodious port. Coringa is scarcely likely, for a considerable time, to come into competition with Bombay.

From the *Gazetteer of Southern India*, published by PHAROAH & Co., of Madras, in 1855, pp. 1-5 :—

It was not till A.D. 1471 that the Mahomedans of the Deccan extended their arms to the Northern Circars. At this time Oria, the Rajah of what is now the Ganjam country, died without issue, and his adopted son Mungul Roy and his cousin Hunner (?) became competitors for the succession. The latter had recourse to Mahomed Shah, the last king but one of the Bhaminee dynasty of the Deccan, who not only installed him, but acquired for him, A.D. 1480, on condition of his becoming tributary, the countries of Condapilly, Ellore and

Rajahmundry. About A.D. 1490 Mahomed's successor, Mahmoud, acquired Masulipatam and Guntoor, which districts formed part of a great principality lately established by the Hindu Rayers, descendants of the Telinga Rajahs conquered at Warunkul (A.D. 1323). Taking advantage of the disturbed state of the Carnatic, they had made themselves masters of the sea-coast from Madras to the Kistnah, and held their chief residence at Chandragherry. •

It was during this Mahmoud's time (in 1512) that the Bhaminee dynasty was dismembered, and the five Deccanee kingdoms set up. The country now known as "The Northern Circars" fell under the dominion of the Kootub Shahee state, whose capital was Golconda or Hyderabad. That portion south of the Godavery became tributary without difficulty, but Wistna Deo or Gajeputty, a powerful prince of Orissa, who ruled in Rajahmundry and Chicacole, withheld submission, and it was not till A.D. 1571 that his pretensions were lowered. At this period Vacharoy Mussalee, ancestor of the Peddapoor family, was induced to take a treasonable part against the Rheddy or Gajeputty, under whom he was chief renter, and assisted the designs of the Deccanee king; still the subjection of Rajahmundry and Chicacole was not very complete, though the collections were made by the Deccanee Government. In 1687 Golconda was taken, and the Kootub Shahee dominions passed over to Aurungzebe. Aurungzebe was too much occupied with establishing his authority in the Deccan, and curbing the Mahrattas, to pay much attention to the Orissa coast, and in the period which followed his death the empire of the Moguls was so distracted that no regular government was established in the Circars.

When Nizam-ool-Moolk was constituted by the Mogul Emperor Soobedar of the Deccan, in A.D. 1713, he took steps to settle the Orissa country, and appointed to the government of Chicacole Anwar-ood-deen Khan, so well known afterwards as Nawab of the Carnatic. Rustum Khan was appointed to Rajahmundry and the Circars to the south. He introduced a settled administration of revenue, but did not spare the Zemindars, who had defrauded the public treasury, and despoiled the country by their oppressions. A pile of heads was exhibited at Rajahmundry, and a similar monument at Masulipatam. For Zemindars Aumeens were substituted, but Mussulman ignorance and indolence soon made it necessary to recur to the ancient system of finance, through the agency of Farmers-General who were Hindoos. They had certain local privileges, which became hereditary, and by degrees a new race of Zemindars sprang up.

The Northern Circars were, when under the Nizam's Government, five in number, as noted in the margin. The boundaries of *Guntoor* were the same as they now are, viz., the Kistna on the north and west, Cuddapah and Ongole on the south. *Condapilly* comprehended the strip of country between the Kistna on the south and the town of Ellore and the Colar lake on the north. It now forms part of the Masulipatam district. *Ellore* was the country between Condapilly and the south branch of the Godavery, where it falls into the sea at Narsapore. The old Circar of Ellore is now partly in Masulipatam, and partly in Rajahmundry. *Rajahmundry* did not extend so far north as it does now, the northern boundary being the small river Sattiaiverum, which falls into the sea at Coconada. North of Rajahmundry was the large Circar of *Chicacole*, anciently called Kulling (whence Calingapatam). It comprehended part of present Rajahmundry, and all Vizagapatam and Ganjam. It had two subdivisions, viz., Chicacole proper (or Vizagapatam), and Itchapore (or Ganjam), the river Poondy at the town of Chicacole being the boundary.

Besides these five, there was a portion of country, or a coast strip, from Mootapilly to Point Gordeware, called the Masulipatam Havelly, held as a personal estate of the reigning power. It was under a separate Governor, who had the charge of the salt-pans and customs at Nizampatam and other ports. Masulipatam was considered the chief town and fortress of the Northern Circars.

Moozuffer Jung on his accession to the Soobedarship, by the assistance of

Dupleix in 1750, presented the town of Masulipatam and the country round to the French ; and in 1752 Salabut Jung, the successor of Moozuffer Jung, made over to them the whole of the Northern Circars. For they, through M. Bussy, had rendered him essential service. Bussy was appointed to rule these provinces. He dismissed the Zemindars from their employments, but permitted them to enjoy, under French sunnuds, their russooms and saverums (hereditary perquisites and privileges), to the amount of about one-tenth of the revenue of the country. He had most difficulty with the large Circar of Chicacole, where independent chiefs, family feuds, and internal usurpations had thrown everything in disorder. Bussy's object was to unite all under one head, and he fixed on Vizieram Rauze of Vizianagram. With French assistance, the Bobily* and other chiefs were subdued. Bussy was obliged to reside generally at the Nizam's Court at Hyderabad, and thus his plan of revenue administration was never fully carried out.

Vizieram Rauze was succeeded by Anunderauze Gajeputti, who soon found Bussy too energetic a master. Lally, the Governor of Pondicherry, having recalled Bussy to assist in the siege of Madras, Anunderauze made offers to the Madras Government to assist in taking possession of the Circars. The Madras Government, with the French army at their gates, declined ; on which the Rajah applied (in 1758) to Bengal, and Lord Clive detached Col. Forde to co-operate with him. Forde defeated Confans, Bussy's successor, at Peddapore. The French General then retreated to Masulipatam, and obtained promise of aid from Salabut Jung, who marched towards the scene of action. Though Anunderauze and his party fled, Forde continued his course, and eventually took Masulipatam by storm, before Salabut Jung reached it. This occurred in April 1759, two months after the French had raised the siege of Madras. A treaty was concluded with Salabut Jung, by which the whole territory dependent on Masulipatam (about 80 miles of coast, and 20 inland) was ceded to the British, and the French were to be made to leave the country. The rest of the Circars was left nominally under the Nizam's authority, though in fact the driving out of the French from the Northern Circars was virtually a conquest of the whole. The Nizam, occupied with the intrigues of his brothers, Basalut Jung and Nizam Ali, and with the incursions of the Mahrattas, was quite unable to maintain his authority in the Circars. In 1761 Nizam Ali effected the supersession of his brother Salabut Jung, and after keeping him in prison two years was accessory to his murder. Ali's title was, however, confirmed by the Emperor, at Delhi.

In 1762 four of the Circars were offered by Nizam Ali to the Company, the fifth, or Guntoor, being held as a Jaghire by his brother Basalut Jung. But as the terms required were those that the French had formerly accepted, viz., the condition of affording military aid to the Nizam, the offer of the Circars was declined. They were then placed in the charge of one Hoossain Ali, and, to prevent the intrusion of the French, the English Government in 1765 agreed, at the Nizam's request, to aid him with their authority. The whole country was in disorder, each Zemindar being a petty Prince, hardly acknowledging any authority on the part of the Nizam. Hoossain Ali, supported by the English, obtained possession of Condapilly, Ellore and Rajahmundry, having engaged to put the Company in possession of them whenever required, on a reasonable maintenance being secured to him.

In October 1765 the Council at Madras advised the Directors that Lord Clive had, at the instance of Mr. Palk, the President at Fort Saint George, obtained sunnuds from the Mogul for all five Northern Circars, and a confirmation of the Jaghire granted by the Nabob to the Company, near Madras. It was judged prudent to defer taking immediate possession of the Circars, as the Council were not aware how far they might be required to send aid in troops to Bengal. The revenues for the next year had been anticipated by Hoossain Ali, to enable him to make good his payments to the Nizam and support his troops, but the

* The assault on Bobily (instigated by Vizieram Rauze) and the immolation of the women and children by order of the Rajah Runga Roy, Dec. 1757, are well described by Orme, Vol. II., p. 258.

possession of the sunnuds^a was important, the French being thereby prevented from getting a footing in that part of the country. The sunnuds were, however, published at Masulipatam, and received there with general satisfaction. A military force was sent, under General Caillaud, to support the authority of the grantees; and the fort of Condapilly, which in a great measure secured the pass into the Circars, and resisted his entrance, was carried by assault. The Council now determined to take the countries into their own hands, to receive from the Zemindars the outstanding balances, and to use every means for discharging Hoossain Ali's troops.

In order that Nizam Ali might throw no obstacles in the way, a treaty of alliance was signed at Hyderabad, on the 12th November 1766. By this treaty the Company, in consideration of the *grant of the Circars*, engaged to have a body of troops at His Highness's disposal, to settle any internal rebellions, or, in the event of troops not being required, to pay nine lacs of rupees per annum. Guntoor was to remain in possession of Basalut Jung till his death. The diamond mines were specially reserved to the Nizam. On the 1st March 1768 another treaty was made (after the Nizam's failure as an ally of Hyder to subvert the English), by which His Highness acknowledged the validity of the Emperor's firman. He was to be paid 5 lacs of rupees a year; out of which, 25 lacs were to be deducted, as the expenses of the war. This payment was made to appear not as peshcush, but as a mark of amity. Guntoor was left in the hands of Basalut Jung as before. In 1769 the term for which the Circars had been let to Hoossain Ali having expired they were taken under the Company's management. Basalut Jung subsequently gave great uneasiness to the British, by receiving into his service a body of French troops. Application was made to his brother Nizam Ali, who promised to get them removed, but it was not done. In 1778 a treaty was entered into with Basalut Jung, by which the Company were to rent Guntoor from him during his life, for the sum he had previously realized for it. He, on his part, was to dismiss his French troops, and the Company were to assist him with a subsidiary force, kept up at his expense. Basalut Jung had other territories south of the Kistna, Adoni being his capital.

In 1779 the Government became again at variance with the Nizam, who was once more in confederacy with Hyder. The plea on his part was the Company's refusing to pay peshcush for the N. Circars, on the ground of their being held under the sunnud of the Great Mogul. The approaching hostilities with Hyder obliged the Madras Government to withdraw from the position of independence they had assumed, and in which they were not supported by the Bengal Government, who went even further in 1780, and, on the representations of Basalut Jung and Nizam Ali, directed that the treaty with Basalut Jung should be cancelled, and Guntoor restored to him. Basalut Jung died in 1782, but not for six years (in 1788) was possession of Guntoor obtained, and then only on a peshcush of 7 lacs per annum. Nizam Ali died in 1803. In 1823 the peshcush was redeemed by a payment of 1,200 lacs to the Nizam, and it then became a British possession.

HYDERABAD.

HYDERABAD, including the provinces of Hyderabad and Beeder, and also part of Aurungabad, Candeish, and Berar, which compose the territories of the Nizam, lies between 15° and 21° 30' north latitude, and 75° and 81° 30' east longitude. The

Situation and
Boundaries.

territory is somewhat of a quadrangular shape, but the sides are very irregular. It is bounded on the east by the country of the Raja of Nagpore, the Wurda and Godavery rivers separating the two countries; on the north by part of the Nagpore country, Meiwar, and a part of Candeish; on the west lie the Bombay territories; and on the south the Ceded Districts, Kurnool, Guntoor, and part of the northern division of the Madras provinces, the Toombuddra and Kistna rivers throughout a great part of its southern limit forming the natural boundary. Its average

length may be estimated at 320 miles from north to south, and its breadth 270 from east to west, containing an area of about 90,000 square miles.

The general surface of the country is irregularly hilly, the average elevation 1,800 to 2,000 feet above the level of the sea; but there are no mountains of any great height to be seen.

General aspect.

The rocky hills consist chiefly of dark-coloured granite, found in most places in large detached blocks, and in others pervaded by dykes of greenstone, which are frequently of great extent. The soil in

Soil.

general between the granitic hills is extremely fertile, and where capable of being irrigated, and in situations where alluvial deposits are collected, produces rich crops of rice.

Although complete isolation is the apparent character of the hills and groups, on a closer examination it will be found that they are connected at their bases, by scarcely distinguishable elevations, pursuing the north-west and south-east direction, common to them and the larger ones. They are extremely bare and rugged in their outline, and consist of piles of rocks lying on enormous masses of concentric granite. In the process of decomposition these form tors and logging stones of a singular appearance.

The hill on which the fort of Bhowanigur is built, and that of Maul Ali, 2,017 feet above the level of the sea, may be taken as specimens of the isolated hills and groups; and the ranges of Mulikapore and Golcondah as specimens of the continued hills. The only parts of the country which are entitled to the name of plains are those in the neighbourhood of the rivers, being formed by their inundations, and therefore of small extent. The ranges of granite which run north-east and south-west from Guntur to Gundwana, forming the pass of the Kistna at Beizwara, and of the Godavery at Papkunda, are of a different character, being less interrupted, more elevated above the plains, although not higher above the level of the sea. They are also of a different structure; their sides are very precipitous, and oblige the traveller to use his hands and knees for a considerable portion of the ascent; though their outline is not rugged, and the logging stones and tors, of the former mentioned granite, are not visible.

The fertility of the soil which composes the cultivated districts of the granitic part of this province depends greatly on the facility with which the rock of which they are formed becomes decomposed. The soil is silicious, but varies as much as the granite rock itself, and yields but few spontaneous productions. The rich valley of Mulikapore forms an exception, and it may be said that usually the spontaneous fertility is in the inverse ratio of height above the level of the sea.

The lakes with the exception of the Purkal, 120 miles N. E. of the city of Hyderabad, are all artificial, and are found only in the granitic and sandstone country. They are usually formed by uniting two projecting spurs of low hills, at some point where they advance far into the valley, by enormous causeways of granite, or mounds of earth which dam up the different streams rushing from the hills during the rainy season and so form sheets of water of from three to ten miles in circumference. This mode of retaining water artificially is probably coeval with the first increase of population in this country, as the small supply derived from wells would not be equal to the cultivation of rice, which is the only grain extensively produced in the granitic soil.

After the rains the loss of the tanks by irrigation, evaporation, &c., is partly supplied by infiltration; nevertheless, many become dry before the monsoon season returns.

Those tanks which are neglected, and no longer supply rice fields, are speedily covered with the large leaves and flowers of the *nelumbo indica*, *othelia alismoides*, and other aquatic plants; their waters acquire a noisome smell and unwholesome taste. The number of tanks, and their state of repair, afford a fair criterion of the prosperity of the country. They are less frequent in the sandstone country, and the unirrigated cultivation is accordingly more abundant. In the basaltic trap they are rarely seen, and the irrigation of rice when cultivated is performed solely by wells.

The Purkal, to which allusion is made above, is a body of water of great

extent, and considerable depth ; it gives rise to a stream called the Kussera, or Over, which, as well as several other large streams, taking their rise both in the eastern and western direction, join the Kistna river, which enters the sea south of Masulipatam. The water in general, both of tanks and wells throughout the country, is of good quality. The most remarkable of the tanks is the Hussain Saugor, lying between the cantonment of Secunderabad and Hyderabad. It is several miles in circumference, and irrigates a great extent of paddy ground. There is another tank to the west of the city of Hyderabad, which is 17 miles in circumference when full. It is filled by a canal from the Musah river, and supplies the city with water. It was constructed at an expense of 8 lacs of rupees.

The principal rivers are near the northern boundary, as the Poorna, which flows throughout the rich valley of Berar, and unites with the Rivers. Taptee at Chandway in Meihar ; the Wurda, which runs along the western boundary dividing Hyderabad from the country of Nagpore, and which unites with the Godavery near a place called Serlouncheh. The Pynegungah takes its rise in the north-western part of the country, and flowing eastward joins the Wurda near Warra. The Godavery, the most considerable river in Southern India, takes its rise in the mountainous parts of Aufungabad, and flowing eastward intersects the country of Hyderabad, and after receiving innumerable tributary streams, the principal of which are the Manjeera, the Glurk, Purna, and Wurda, it flows south-eastward into the Bay of Bengal, below Rajahmundry. The Kistna, next in size and importance, also rises in the western ghauts in the province of Beejapore, and takes a direct easterly course through the southern part of the Hyderabad country, being joined by the Beema and Toombuddra rivers, which also have their origin in the same range of ghauts, the former uniting with it at Culloor, and the latter at Mooricondah ; many smaller streams also flow into it, amongst which is the Musah or Hyderabad river, which joins the Kistna below Warrapilly ; after which it inclines somewhat to the northward, and making a considerable sweep then proceeds south, and enters the sea at Masulipatam.

There are several military roads passing through the Hyderabad country. Roads. The principal one is that running from Secunderabad to Madras via Warrapilly and Ongole ; and along this line bungalows have been erected at each stage for travellers. A branch from this road strikes off near Nacracul and proceeds by Beizwarra to Masulipatam, along which also there are bungalows at the several stages. Proceeding northward to Nagpore there are two roads, one via Nandair, and the other by Nirmul. The latter road, however, can only be travelled with safety from January to the end of May, or previous to the setting in of the south-west monsoon, owing to the danger of contracting remittent fever at the other periods of the year in passing through the extensive Nirmul jungle. This jungle commences about five miles from Nirmul, on the summit of the ghaut of the same name, and extends to within two or three miles of Yedulabad, the total distance between these places being 46 miles and 2 furlongs. The road via Nandair, being open and free from dense jungle, may be travelled with safety at all seasons, and, though circuitous, is consequently preferred. A road also proceeds north and by west to Jaulnah. A road running southward divides at a place called Judpacherlah into two branches, one leading to Bellary and Bangalore, the other to Kurnool and Cuddapah ; bungalows have not been erected on these lines. In addition to these various roads, others intersect the country in all directions, running between the different stations of the Nizam's army and the principal towns. The travelling distance from Secunderabad to Madras, via Ongole, 399 miles ; to Masulipatam, by Beizwara, 221 ; to Nagpore via Nirmul 323½, and by Nandair 420 ; to Jaulnah, by Oodghir, 263 ; to Bellary, via Adoni, 229½ ; and to Cuddapah, via Kurnool, 256½.

The wild animals do not differ from those usually met with in Southern India ; tigers, cheetas, and antelopes are, however, very numerous, and in the unfrequented country to the north-west wild buffaloes are also to be found. The wild elephant is not known in this part of the Deccan.

HYDERABAD OR BAUGNUGGUR,

388 miles from Madras,

the capital of the province, and of the Nizam's dominions, situated in latitude $17^{\circ} 15' N.$, longitude $78^{\circ} 35' E.$, stands on the south side of the Musah river, which runs very rapidly in the rains, but in the dry season has scarcely two feet of water. It is surrounded by a stone wall, which is no defence against artillery, but which formerly served as a protection against the incursions of predatory cavalry. Within the wall the city is about four miles in length, by three in breadth. The streets are narrow, crooked, and badly paved. The houses are mostly of one story, built of wood, and other combustible materials. Over the river Musah there is a large arched bridge, sufficiently broad to allow two carriages to pass.

The city of Hyderabad, close to the walls of which the river Musah runs, is by barometrical measurement 1,672 feet above the level of the sea, and the cantonment of Secunderabad 1,837, which agrees with Colonel Lambton's trigonometrical measurement within 19 feet. The outline of the basaltic trap hills is smooth and rather flattened, with a few conical elevations in the range; or they consist of an accumulation of round hills, with deep ravines intersecting and separating them. They are covered with long grass to their summits. Their course is the same with the granite they cover, but it frequently happens that no regular direction can be perceived. The sandstone country and rocks are flat, the sides of the hill steep, with extensive gaps in the course of their ranges, at times nearly reaching to their bases; their direction is north-west and south-east, or nearly so, and it is probable that they extend over a considerable portion of the south-east part of Gundwana.

The most remarkable buildings are the palace and mosques, of which last there are a considerable number, this city having long been the principal Mahomedan station in the Deccan. About six miles to the west is the celebrated fortress of Golcondah, occupying the summit of a conical hill, and by the natives deemed impregnable. Secunderabad, where the subsidiary brigade is cantoned, stands about three miles north of the city, and is now a large and populous military village.

The surrounding country has a barren, rugged aspect, and the ranges of hills have a remarkably jumbled, irregular appearance. Vegetables and grapes grow in this vicinity to considerable perfection, which is more consequent on the temperature of the climate than the goodness of the soil.

When Nizam-ool-Moolk, the founder of the State of Hyderabad, died in the year 1748, his authority extended from the Nerbudda to

History.

Trichinopoly, and from Masulipatam to Beejapoor. But his death was immediately followed by domestic dissensions, and by the distractions in the Carnatic in which the French and English were engaged as supporters of the rival Nawaubs. The history of his sons is this:—Nazir Jung was assassinated at Arcot in 1750, and Mozuffur Jung, his successor, who was murdered in the following year, had already become so conscious of his inability to maintain himself with the resources of his own government that he had subsidized a body of French troops. The musnud was then contested between Ghazee-ood-deen and Salabut Jung; Ghazee-ood-deen was poisoned by the mother of his rival, and Salabut Jung succeeded to the government. He was supported, however, entirely by the French party at his court, which exercised a more decided control than has been attempted by us, and when M. Bussy was recalled to the Carnatic by M. Lally, Salabut Jung foresaw the ruin of his affairs, and actually shed tears when he parted with him. The government was almost immediately usurped by the fifth son, Nizam Ali: and Salabut Jung, after several ineffectual attempts to escape from the confinement in which he had been placed, was at length put to death in 1763. In the short space of thirteen years, therefore, three reigning princes and one competitor for the musnud had successively died violent deaths. The long reign of Nizam Ali, though less disastrous to the prince, was even more injurious to the country than the

stormy period which had preceded it. The government of Hyderabad had been thwarted in every war in which it had been engaged between the death of Nizamool-Moolk and the treaty of Paungul in 1790, with the single exception of a short campaign against the Mahrattas, which Nizam Ali conducted with some success in 1761, and the result had in every instance been attended with a loss of territory or of revenue. (The foregoing statement is taken from a letter addressed by Mr. Russell, then Resident at Hyderabad, to Lord Hastings, dated November 24, 1819.) In the beginning of the year 1765 the English and their ally the Nawab of the Carnatic were summoned to action by the irruption of Nizam Ali into the Carnatic, which he plundered and laid waste; he, however, felt no desire to fight, and on the appearance of the allied forces hastily retreated to his own country. At this time the British Government had acquired from the Mogul the grant of the Northern Circars, a country which fell within the government of the Nizam, and was managed by a deputy or commissioner of his appointment. To take possession of the Circars, General Calliaud marched with the troops of the Carnatic, expelled the French who had been stationed there by Salabut Jung, and found little opposition on the part of the Rajas and Polygars. The Nizam, who was then making head against the Mahrattas, no sooner heard of these operations than he returned to his capital, and prepared to invade the Carnatic. To avert a war, the Madras Government deputed Calliaud to Hyderabad with full power to negotiate, and a treaty was concluded on the 12th November 1766, by which the Company agreed to pay to the Nizam an annual pesheush or tribute for the Circars. The Company further engaged to hold a body of troops in readiness to settle, in every thing right and proper, the affairs of His Highness's government. The exploit in which these troops were first to be employed was the reduction of the fort of Bangalore, belonging to Hyder Ali, with whom the English were upon hostile terms. But Hyder found means to draw off the Nizam, and to conclude with him an alliance, in consequence of which they united their forces at Bangalore, and in August 1767 began to make excursions into the Carnatic. Lieut.-Colonel Smith, who commanded the detachment which, in virtue of the treaty of 1766, had been supplied to the Nizam, was attacked by the joint forces of His Highness and Hyder, and compelled to retreat to Trincomallee, whence, however, the Colonel subsequently sallied forth and gained some advantage over the enemy. Nizam Ali, whose resources could ill endure a protracted contest, grew heartily sick of the war, and during the rains signified his desire to negotiate. As a security against deception, Colonel Smith insisted that he should first separate his troops from those of Hyder. But in the mean time the fair season returned, and the Colonel, having received reinforcements, attacked and defeated the enemy between Amboor and Wanumbaddy, when Hyder and his ally fled to Caverypatam. This disaster quickened the decision of the Nizam, who now promptly separated his troops from the Mysoreans, and commenced a negotiation, which terminated in a treaty dated the 26th February 1768. The Nabob of the Carnatic was a party in this treaty, which, among other provisions, fixed the tribute payable for the Circars at seven lacs of rupees per annum, and stipulated that two battalions of sepoy's, and six pieces of artillery manned by Europeans, should be supplied to the Nizam whenever he might require them, the expense to be borne by His Highness so long as they should be employed in his service.

In the year 1779 the Government of Madras prevailed upon Basaulut Jung, the Nizam's brother, to dismiss some French troops which he had taken into his service, and to replace them by a British detachment. He was, moreover, induced to grant to the English the Guntoor Circar on lease. Guntoor is one of the Northern Circars, but the Company were not to have possession of it during the life of Basaulut Jung. These proceedings were taken without consulting the Nizam, who was seriously offended, and charged the Madras Council with having violated the treaty of 1768. The Government of Bengal severely condemned the conduct of Madras, and for this and other offences the Court of Directors dismissed the Governor, Sir William Rumbold, and part of the Council. The

HYDERABAD AFFAIRS.

Nizam, now connected with Hyder, threatened to attack Basaulut Jung, unless he annulled his engagement with the English; and towards the end of the year 1780 Nizam Ali acceded to a treaty between Hyder and the Mahrattas for a system of combined hostilities against the English, who had espoused the cause of Ragobah, who, in opposition to the decision of the Mahratta chiefs, endeavoured to obtain the vacant office of Peshwa. The Supreme Government made restitution of the Guntoor Circar, and tried to conciliate the Nizam, who, partly from poverty and weakness, partly from jealousy of Hyder, and partly from the assurances which he had received from Bengal, had refrained from taking an active part in the war. Towards its close, in the year 1784, Mr. Hastings had entered into a negotiation with Nizam Ali for obtaining from that prince a body of his horse, and for ceding to him in return the Northern Circars, but having submitted the scheme to Lord Macartney, who had arrived at Madras before the arrangements were concluded, that nobleman's reasonings induced Mr. Hastings to abandon the scheme. Among the instructions with which Lord Cornwallis was furnished in 1786 for his guidance as Governor General was an explicit order to demand the surrender of the Guntoor Circar. Basaulut Jung had died in 1782, but Nizam Ali retained possession of the Circar, and the English had withheld the payment of the *pesheush*. On his arrival in India Lord Cornwallis was deterred from obeying immediately the peremptory order which he had received respecting the Guntoor Circar. His Lordship saw reason to believe that the agitation of the subject would offend the Nizam, and that Tippoo would take advantage of the dispute to establish his influence at the Court of Hyderabad. Moreover, apprehensions were at that time entertained of a rupture with France. In 1788, however, the state of affairs being apparently more favourable, the question was brought forward. The Nizam, preferring the friendship of the English to a connexion with either Tippoo or the Mahrattas (to one or other of whom he appeared likely to fall a prey), manifested an unexpected readiness to comply with the Governor General's demand, and the Guntoor Circar was accordingly surrendered in the month of September 1788. Lord Cornwallis felt himself restrained from contracting a more intimate connexion with the Nizam, not only by the legislative enactment which inhibited the formation of new alliances except in the event of war, but also by the fear of exciting the jealousy of the Mahrattas, with whom His Lordship wished to keep upon good terms. An expedient, however, was resorted to, which was intended to meet the Nizam's wishes without violating the law or risking the enmity of the Mahrattas. This was to consider the old treaty of 1768 as being still in force, and to give to the clauses of that treaty such an extent of meaning as would satisfy the demands of the Nizam. In the treaty of 1768 it was stipulated that the battalions and cannon should be lent to His Highness whenever the necessity of the Company's affairs would permit. It was now agreed that they should be furnished when applied for, under one limitation, namely, that they should not be employed against the Company's allies, among whom were specified the Rajas of Travancore and Tanjore. As Tippoo Sultan was not named in this exceptive list, he might justly have taken alarm at the implied discretion of employing the force eventually against him.

The engagement thus contracted with the Nizam was contained in a letter from Lord Cornwallis to His Highness, which, however, was declared to be equal to a treaty. Towards the close of the year 1789 Tippoo Sultan having attacked the lines of our ally the Raja of Travancore, Lord Cornwallis made immediate preparations for war; and being now actually relieved from the legal restraint on new connexions His Lordship proceeded to negotiate both with the Nizam and with the Mahrattas. The Nizam was anxious that the treaty should contain an article for the unlimited guarantee of his country, from an apprehension that while engaged against Tippoo the Mahrattas might make an attack upon him. Lord Cornwallis did not see fit to comply with the Nizam's request, but assured His Highness that he would find the British Government well disposed, at a proper opportunity, to take such further steps for drawing the connexion closer between the two States as might be consistent with good faith, and a due attention to

subsisting engagements with its other allies. The treaty with the Nizam was signed on the 4th July, and that with the Poona Durbar on the 1st June 1790. The contracting parties bound themselves to prosecute the war vigorously, not to make peace except with mutual consent, and to make an equal partition of their conquests. Tippoo having been compelled, by the treaty of peace dictated under the walls of Seringapatam, to cede the half of his dominions, a partition of them was accordingly made between the allies in three equal shares. The force supplied by Lord Cornwallis to the Peshwa was two battalions of sepoy, to serve during the war. By the separate agreement with the Nizam a detachment of from four to six battalions was to be sent to His Highness. The fourth article of the agreement was as follows :—

“ Whenever a letter from Lord Cornwallis requiring the dismissal of the said detachment shall arrive, provided it is at leisure from service, and also whenever His Highness shall think proper to dismiss it, there shall be no hesitation on either side.”

In the letter from Lord Cornwallis to the Nizam above alluded to as equivalent to a treaty it was agreed that in future either party, without a breach of treaty, should be at liberty to receive or send vakeels to correspond with any powers in the Deccan, in such manner as might be expedient for the benefit of their own affairs, under the condition that the object of such intercourse or correspondence be not hostile to either of the Governments. After the termination of the Mysore war two battalions continued with the Nizam. Upon the peace of Seringapatam, Hurry Punt, one of the Mahratta Generals, pressed Lord Cornwallis to let the Peshwa subsidize in future a corps of British troops, in like manner as the Nizam then did. Whether he was so authorized by the Peshwa is not known. Lord Cornwallis, although the Mahratta General urged it strongly, declined the proposal, thinking it hazardous to mix up his Government in the unsettled policy of the Mahratta States. It has been already stated that the Nizam had manifested an anxiety that the treaty of 1790 should contain an article for the unlimited guarantee of his country, from an apprehension of the future hostility of the Mahrattas. Soon after Lord Teignmouth's accession to power circumstances occurred which justified that apprehension. The seeds of rupture existed in the nature of the political relations between the Nizam and the Mahrattas. An unsettled account was always pending, consisting partly of arrears of Chout, and partly of portion of the revenues of territory situated within the Nizam's boundary, but which the Mahrattas claimed the right of collecting through their own officers. The mixed nature of this connexion had afforded to the Mahrattas the means of establishing a powerful ascendancy over the government of Hyderabad, which had been with much difficulty shaken off when the Nizam renewed the alliance with the English in the year 1788. When, in the year 1794, the Mahrattas prepared to enforce their claims upon the Nizam, Lord Teignmouth proffered his mediation, which having been rejected by the Poona Durbar hostilities ensued. In February 1795 a corps under the command of Dowlut Rao Scindia marched towards the Nizam's camp. On the 11th of March the latter was attacked, and a general action ensued, in which both parties were thrown into some confusion, and neither obtained any decided advantage. The Nizam, influenced by the fears of his women, who attended him in the action, retreated during the night, and took shelter in the small fort of Kurdlah, which is surrounded by hills except in one part; this part the Mahrattas immediately occupied, and thus completely hemmed in the Nizam's army, and cut off his supplies. After remaining for some weeks in this situation, His Highness was obliged to make peace on very humiliating conditions. He bound himself to discharge annually the Chout of Adoni and Kurnool, to pay three crores and ten lacs of rupees in money, and to cede territory yielding an annual revenue of thirty-four lacs of rupees. His minister, Meer Allum, was delivered up as a hostage, and carried to Poona. When encamped at Beder, prior to the action, the Nizam earnestly solicited that the two battalions of our sepoy should join his camp; but the Governor General refused to comply with his request, fearing to offend the Mahrattas. It was, however, so arranged that while the Nizam was at war the

Company's battalions should be employed in preserving the tranquillity of His Highness's dominions. After the convention of Kurdlah was settled Nizam Ali returned to Hyderabad, and the Mahrattas to their own country, which they had hardly reached when the Peshwaship became vacant by the death of Madhoo Row, who was killed by a fall from the top of his palace. This accident occurred on the 27th of October 1795.

The Nizam, on his arrival at Hyderabad, dismissed the Company's battalions, and proceeded to augment certain corps commanded by the French officers, which had been some time in his service. The battalions, however, had scarcely retired from the Nizam's capital, when he pressed their instant return, in consequence of the flight and rebellion of his son Ally Jah, whose capture and death took place before the battalions reached Hyderabad. But although the danger which occasioned their recall had thus passed away the Nizam thought proper to detain the Company's battalions in his service. The untimely death of Madhoo Row gave rise to party disputes respecting a successor to the office of Peshwa. The two sons of the late Ragobah, Bajee Row and Chinnajee Appah, stood in the line of succession; but Nana Furnavese, who had for many years been at the head of affairs at Poona, kept these youths in a state of confinement, intending to set them aside and to procure the adoption by Madhoo Row's widow of a Brahmin infant, during whose minority he hoped to exercise the power of Regent. The Governor General preserved the strictest neutrality upon this occasion; but Azim-ool-Omrah, the Nizam's minister, sided with the Nana Furnavese, and, during the time that his party predominated, obtained a remission of the pecuniary fine which had been imposed upon the Nizam by the convention of Kurdlah, and also a promise that the territory ceded on that occasion should be restored, and that the payment of the Beder Chout should be suspended, at least during the life of Nizam Ali. Such were the conditions granted to the State of Hyderabad by the treaty of Mhar. The parties opposed to the scheme of the Nana Furnavese, however, succeeded in establishing Bajee Row in the Peshwaship, and when he became settled in power the Mahratta Durbar repented of the liberal price which they had agreed to pay for services which altered circumstances had rendered useless.

Azim-ool-Omrah was detained at Poona until June 1797, when a new arrangement was made, according to which one-fourth of the cessions, territorial and pecuniary, as settled by the convention of Kurdlah, was to be made good by the Nizam. At the time the British Indian Government, under a feeble and over-pacific administration, had lost both strength and reputation, and the Nizam no longer placed that confidence which he had formerly reposed in its friendship; and when in April 1798 Lord Wellesley assumed the supreme government of British India the Nizam had in despair thrown himself in the hands of a French adventurer named Raymond, who, with others of the same nation, commanded the largest and most efficient part of His Highness's military force. The hostile designs of Tippoo Sultan were now ripe for execution, and Lord Wellesley felt the necessity of adopting prompt measures for recovering our lost influence at the Courts of Poona and Hyderabad.

Azim-ool-Omrah, the Nizam's minister, who enjoyed a plenitude of power, was fully disposed to listen to His Lordship's overtures for a more intimate connexion; and although the Nizam anticipated that such an alliance would eventually involve the loss of political independence, he nevertheless became convinced that even this result, however unpalatable, was preferable to a constant exposure to the treacherous intrigues and unlimited demands of the Mahrattas, and the undisguised ambition of Tippoo Sultan. He was therefore induced to give his consent to the dismissal of the French corps, and the increase of the British subsidiary force. A treaty was accordingly concluded on the 1st of September 1798, by which the subsidiary force was augmented by the addition of four to the two battalions fixed by the former treaty. The subsidy to be paid by the Nizam for the support of the whole was increased from 57,713 rupees to 2,01,425 rupees per month, or per annum 24,17,100 rupees. The Nizam engaged to disband the French corps, to the command of which a M. Perron had succeeded on

the death of Raymond. The British Government undertook to arbitrate the points in dispute between the Courts of Hyderabad and Poona. A corps of four battalions of sepoys, under the command of Colonel Roberts, which with their guns had been stationed on the Nizam's frontier, marched, as soon as the treaty was concluded, to Hyderabad, where on the 10th October 1798 it joined the two battalions formerly stationed there. Some hesitation was manifested on the part of the Nizam and his minister to break up the French corps, but a movement of the British troops which menaced an attack on the French corps induced the Nizam's government to issue a proclamation informing the native troops of Perron's corps that His Highness had dismissed their European officers from his service. A violent mutiny ensued, of which immediate advantage was taken to surround their cantonments, and in the course of a few hours a corps whose numbers amounted to nearly 14,000 men, and who had in their possession a train of artillery, and an arsenal filled with every description of military stores, was completely disarmed, without one life having been lost. The French officers were not treated as prisoners of war, but were sent to England, and thence to France. By measures thus wisely adopted by Lord Wellesley, and skilfully executed under His Lordship's instructions, the Nizam was enabled to perform the duties of an ally in the memorable war which terminated in the entire conquest of Mysore, and in the death of Tippoo Sultan. As a reward for his exertions, the Nizam obtained a considerable share of the conquered territory.

Lord Wellesley's endeavours to restore the alliance with the Peshwa were not so successful. Scindia, who had acquired a dominant influence in the councils of Poona, was supposed to be more inclined to take part with than against Tippoo. As the Nizam's country now constituted the only barrier between the British possessions and the Mahratta empire on the side of Mysore and the Carnatic, Lord Wellesley deemed it necessary to draw still closer the bonds of the alliance with His Highness. A regiment of cavalry had in the year 1799 been added to the subsidiary force. By a treaty concluded on the 12th of October 1800 the subsidiary force was again augmented by the addition of two battalions of infantry and a regiment of cavalry, making in the whole 8,000 infantry and 1,000 horse; but by an arrangement made 29th May 1803 a regiment of Europeans was substituted for two battalions of native infantry. In order to prevent discussions upon pecuniary matters, and to place the alliance upon a firm and durable basis, Lord Wellesley prevailed upon the Nizam to cede in perpetuity, and in full sovereignty, all the territory which he had acquired by the Mysore wars of 1789 and 1799, which cession was regarded as an equivalent for subsidy. His Highness also consented to such exchanges of districts as served to constitute a more definite line of demarcation between the territories of the two States. By the treaty of 1800 the British Government engaged to defend the State of Hyderabad against foreign aggression, and to enforce the claims of the Nizam upon the Zemindars of Shorapore and Gudwall, and any other of His Highness's subjects who might revolt from their allegiance. In the event of war the subsidiary force (with the exception of two battalions to be kept near the Nizam's person) was to be employed against the enemy, and His Highness was to furnish a contingent of 6,000 infantry and 9,000 horse, and to afford all further aid which might be necessary, to the extent of his means. He was restricted from entering into negotiations with other States, and from committing hostilities, without the knowledge and consent of the British Government, and in the event of differences arising between His Highness and any other power, to refer the matter to the British Government, and to abide by its decision. It was agreed on the part of the British Government that they would in no instance interfere with the Nizam's children, relations, or subjects, with respect to whom they would always consider him absolute.

Nizam Ali died in 1803. His son and successor, Sekunder Jah, proved less favourably inclined towards the English, and afforded no assistance in the war of 1803, though allowed to participate in the conquests from Scindia, Holkar, and the Rajah of Nagpore, which extended his northern boundary to the Judgadree

hills and the Wurda river." His Highness acquired a further increase of territory by the war of 1817-18, estimated at a revenue of 6,26,375 rupees. His whole revenue in 1821 was 1,89,33,550, and his expenditure, including interest of debt, 1,75,11,400, leaving a surplus of 14,22,153 rupees. The expense of the military force of the durbar officered by English gentlemen (many of them from the Company's troops) may be roughly estimated at between 30 and 40 lacs of rupees.

We must now proceed to notice the change that took place when Sir Charles Metcalfe was Resident at Hyderabad. He found that the tyranny and oppression of the subordinate officers of the native government loudly called for checks; and he became convinced that nothing short of the employment of British officers in the several divisions of the territory, who should define the amounts of revenue which the government was entitled to levy, and who should watch for a period of years that only this amount was collected, could be sufficient for the purpose of extending effectual protection. The system adopted was to inquire, with the assistance of the Nizam's revenue officers, into the present capability of villages, the average amount of revenue which they had paid in the last few years, and the means of the people to increase cultivation; from these various sources of information a village assessment was formed, generally for a period of five years. Leases were granted on these terms, and a written acceptance of the conditions, and a promise to abide by them, was taken from the people. No sooner had the government commenced the good work of inquiring into the rights of the people, thought of redressing their grievances, and fixed the extent of their own demands on them, than the country was restored to comparative tranquillity. It was no longer necessary to employ troops in the collection of the revenue, or in asserting the rights of the government, and from the period when the Nizam's country came under this superintendence till it ceased not a trooper marched, not a musket was shouldered, in support of the measures taken, except in tracts inhabited by Bheels and professional plunderers. His Highness Sekunder Jah died on the 24th May 1829, at the age of 59. His eldest son, Nazim-ood-Dowlah, was immediately proclaimed his successor by the Minister and British Resident, and three days after placed on the musnud with the usual ceremonies. His titles are Muzuffur-ool-Moomalik Nizam-ool-Moolk Meer Furkhunda, Alikan Bahadoor Futeh Jung.

The new Nizam claimed the privilege of administering the affairs of his country in his own way, the right was conceded to him, and interference on our part in the civil affairs of his government ceased.

SECUNDERABAD,

397 miles from Madras,

a cantonment in the Nizam's territories, the head-quarters of the Hyderabad subsidiary force, situated in north latitude $17^{\circ} 26'$, and east longitude $78^{\circ} 32'$. The city of Hyderabad lies six miles to the southward, separated from the Residency, usually called the Chudder Ghaut, by the river Musah, crossed by an excellent bridge.

The surrounding country is wild and picturesque, being interspersed with small hillocks of granite over the entire of its surface.

The soil is principally silicious on the higher grounds, and many of the scintillating stones are to be found on the surface, such as quartz, agate, calcedony, flint, rock crystal, also felspar and mica. To the westward, distant about three miles, is a range of hills consisting of granite rocks heaped one on the other in a variety of strange and fantastic shapes. On the north-east are two very remarkable large granite hills, of a semispherical shape, lying about three miles asunder, and completely isolated. They are both of considerable height, having buildings on their summits, in which are the tombs of several faqueers. The nearest, Maul Ali, as it is called, is the largest; the other hill, named Emaum Zameen, is about one-fifth less in size; and at these places, particularly the first, a large concourse of Mahomedans meet annually for religious purposes.

The south-west monsoon commences generally at Secunderabad in the beginning of June, and continues at intervals till about the middle of October. During November and December the sky is frequently cloudy, and the winds easterly, and sometimes also in the north-east monsoon a considerable quantity of rain falls. From the beginning of January to the end of May the sky is generally clear, and the weather dry. Dews are not infrequent in January and the early part of February, and in some years light showers of rain occur during these months. The annual fall of rain is estimated at thirty-two inches; but in years when the monsoon fails it does not amount to half that quantity. The most sickly periods are the wet and cold seasons, when the mortality amongst Europeans chiefly occurs.

The cantonment extends in a direct line from east to west, nearly three miles in length. The main portion consists of one long curved and irregular road, having the officers' houses ranged on either side in moderate-sized compounds; this road is intersected in different parts by others, running north and south, which afford a facility of communication with the bazaars, sepoys' lines, and parade ground. The original lines face the north, and behind them is the bazaar, commencing on the right or east, and extending three-fourths of the length of the cantonment.

The bazaar runs nearly parallel with the main road, about two furlongs in its rear, having the sudder bazaar situated about the centre.

On the right or east end of the line stand the European infantry barracks, and somewhat in their front, to the north-east, is the burial ground, enclosed by a wall, the road from Madras and Masulipatam running between the barracks and burial ground. A little to the west of the barracks is the hospital, a large and commodious quadrangular building, enclosed by a high wall; and further west are the lines of the officers of the regiment.

Southward, and at an angle with the lines of the European regiment, are those of a native corps. The ground on which they stand is high, intersected by ravines, and the surface very uneven. Left of the European lines follow progressively those of the four native regiments, and the officers' houses extending to the western end of the cantonment; at the extreme end stands the church, a large and handsome building, situated on the highest spot of ground in the cantonment, and to the north-west of it is the masonic lodge. In front of the lines of the native corps are the hospitals, places of arms, and quarters for the sergeants of the corps, and at about the centre of the whole line is the arsenal, the front of all these buildings being in a straight line about thirty feet in advance of the officers' compounds, with a row of trees before them.

About fifty paces further in advance is a good road running from east to west, or from the church to the lines of the horse brigade of artillery, adjoining the parade ground, which is about half a mile in breadth. The parade ground forms an inclined plane, descending about two inches in three feet, and is bounded on the north by a rivulet, having two small bridges across it, over which pass the roads leading to the foot artillery lines, and to the cantonment of Bolarum.

On the south side of the rivulet, due north of the arsenal, is the cantonment burial ground, in a low and swampy situation, surrounded by a fence of milk hedge; on the northern side are, first, the public rooms, and near them five courts, and the infantry lines divided by a narrow strip of rice ground, through which a causeway has been made; there is also a small bridge leading to them, under which passes the little rivulet bounding the parade ground.

South of the horse artillery lines and at the south-western end of the cantonment is an extensive sheet of water called the "Hussain Saugor" tank, which formerly gave its name to the cantonment of Secunderabad. On the eastern side of this large tank is the bund or bank, which runs due south, leading to the residency and city of Hyderabad. The top of the bund forms an excellent road wide enough for three carriages to pass abreast, and is about a mile and a half in length. To the eastward of the tank is a tract of cultivated rice ground, extending about eight miles in length, to the river Musah; near the village, at about a quarter of a mile north-west, are the lines of the foot artillery.

HYDERABAD AFFAIRS.

These lines are situated on higher ground than those of the infantry, and the original granite rocks, with which the whole country is covered in a greater or less degree, have not been removed from around them; both lines run parallel, and are rather more than a mile asunder. On the right of the artillery lines are two hospitals, one for the gun lascars, and the other for the Europeans. About half a mile distant, in the direction of Bowanpilly, are lines for a native corps; they are of a temporary structure. The horse artillery are placed on the north-west end of the encampment, from whence is a commanding view of the whole length of the parade ground, extending as far as the church. The barracks are on an elevated site, and separated from the line of the Native Orpal, on the Madras road.

There are about 5,000 houses in the sudder bazaars, which at the average of six inhabitants to each house would give a population of 30,000. The generality of the houses are of one story, built of mud and tiled, but in the main streets there are a considerable number of a better description, consisting of two stories, and pukka built. The streets are irregular, and deficient in breadth, and the ground is uneven and rocky, causing much difficulty in draining it effectually.

The bazaar is well provided with water of good quality from wells and bowries fed by springs.

Considering the amount of the population there are but few paupers at this station, but a fund is provided by voluntary subscription among the gentry for the relief of the indigent. The fund is under the management of a committee, and mendicants are not allowed to prowl about, or frequent officers' compounds.

The Police force consists of a cutwall, two jemadars, three duffadars, and sixty-one peons, who are divided into night watches for the protection of property, &c. The establishment is paid from the revenue accruing from the Abkarry contract; but there is a separate establishment of a jemadar and twenty-seven peons paid by the Nizam's government, especially employed in preventing the sale of illicit spirituous liquors. The Abkarry contractor is also required to support an establishment of eighty-four peons for the prevention of smuggling.

A distinct building is appropriated as a jail, which includes persons confined for debt, for petty offences, and criminal offenders under sentence by general court martial.

Punishments for petty offences are awarded by the Superintendent of Police, such as fines, imprisonment with or without hard labour, and corporal punishment, but recourse is only had to the latter in aggravated cases, or where other means have proved ineffectual.

Prisoners sentenced to hard labour are employed, under the orders of the Superintendent of Police, in draining and levelling the streets and in repairing bridges and other public works. Prisoners for debt are supported by the parties at whose instance they are confined, and criminal offenders are subsisted by Government at the rate of four pice each per diem; all fines, which are regularly accounted for, are generally sufficient to cover the expenses of the maintenance of the prisoners.

The palm tree, in its varieties, abounds near Secunderabad. The banyan and mangora are also common. The custard-apple (*Annona squamosa*) is indigenous, and grows in great abundance over the whole face of the country.

JALNAH.

659 miles from Madras.

A considerable town and military station, in the province of Aurungabad, on the bank of the river Kundoolah, and the capital of a district of the same name. The cantonment is situated in north latitude $19^{\circ} 50'$, and east longitude 76° ; it is 263 miles' travelling distance north-west from Secunderabad, and about the same from Bombay, and lies between the Nizam's military stations of Aurungabad and Hingolee, being 90 miles west of the latter, and 40 east of the former; the distance to the sea on the eastern coast in a direct line is 210 miles.

The surrounding country is hilly, but not mountainous, and is intersected in all directions with numerous ravines; the hills are chiefly composed of trap rock,

which in many places is in a state of decomposition, and above it is found a layer of red gravel, of a lateritious character, mixed with lime; irregular hilly ranges, with extensive tracts of white stony land covered with long grass, characterize the general aspect of the district; and its surface is singularly barren and dreary. The jungle is low and scattered, consisting chiefly of the babool, except near Soona, 30 miles eastward of Jaulnah, where it is high and thick, and composed of a variety of trees. Jungle exhalations are considered most noxious in October and November.

The roads throughout the country in the dry season are tolerably good, but become nearly impassable in the rains, from being intersected by nullahs, and from the nature of the soft black cotton ground over which they run.

The soil is of the description called cotton ground, interspersed here and there with patches of red gravel; it is capable of the highest degree of cultivation, though often impregnated with saltpetre, which is collected in considerable quantities by some of the villagers, and large tracts of country are reserved for pasturage. Quartz, carbonate of lime, and detached pieces of silex of various tints, many of which are combined with copper and iron, are found in the ravines and nullahs, besides which a brownish ochre, used by native painters, is also very common.

The principal grains and plants cultivated in the neighbourhood are rice, bajree, oil plant, and cotton. Sugarcane is also raised in the neighbourhood in abundance, but the coarsest description of sugar only, and that known under the name of "jaggery," is manufactured, the finer sorts being brought a considerable distance from the Berar country. Wheat and jowaree are grown in great quantities; the former when cheap is preferred to all other descriptions of grain, and during the harvest season forty seers of the best quality can be obtained for a rupee, and sixteen wheaten loaves of the best description are also to be had for a rupee. Chenna (Bengal gram) is raised in large quantities, but coolty (horse gram) is not much in estimation, and is but little cultivated; the former is procurable during the harvest at from 60 to 65 seers per rupee.

The climate of Jaulnah is admirably adapted for the purposes of horticulture. Most European vegetables are raised in great perfection; figs, grapes, peach, strawberries are all excellent in the season—the latter rival in size any metropolis in England, but are somewhat deficient in flavour; there is also a great abundance of excellent peas, beans, cabbage, carrots, parsnips, turnips, onions, potatoes, and cauliflowers, as well as the more common country produce of every description.

Both the large and small descriptions of plough in use throughout are common here, and are worked either by two or four bullocks, in different circumstances; the ground is first ploughed in one direction, and then freed from weeds, when the seed is sown, and the harrow being passed over the operation is completed. Irrigation from wells is chiefly resorted to for the cultivation of gardens, or for a few rice fields in the immediate neighbourhood of the station, wheat and grain of all kinds being watered from tanks.

The climate is one of the most pleasant and salubrious in the country; during the greater part of the year a fresh invigorating coolness is experienced in the mornings. Yet convalescence from serious attacks of disease, and more especially hepatic affections, is almost invariably slow and imperfect, and a change of situation, especially to the sea-coast, is generally found requisite for the restoration of health. The hot season includes March, April, May, and June, and is decidedly the most healthy period of the year; the heat in the middle of the day is intense, the thermometer ranging between 90° and 100° , but it becomes comparatively cool towards morning; the prevailing winds in these months are westerly. The monsoon months embrace July, August, September, and October, but in September a partial cessation of the rains generally takes place. During September and October the exhalations from the soil, when partially dry, are regarded as deleterious, and fever then becomes very prevalent. The average fall of rain is 32 inches. November, December, January, and February comprise the cold season; the variations of

temperature at this time are very great and sudden, the mornings are bitterly cold, and the days hot, the thermometer ranging between 40° and 80°, and ice has been known to form on plants. The winds at this season are northerly and easterly, and when due east are particularly cold and piercing. Fogs and dews prevail most in December and January, which are both very healthy months; and English vegetables then arrive at great perfection.

For some years back there has been but little sickness amongst the resident natives, and the chief disease seen is fever of the intermittent form. The visitations of cholera were formerly frequent and severe, and the consequent mortality very great, but of late years it has seldom appeared.

There are some old inhabitants among the population whose ages vary from 80 to 90, and who, although infirm, are still hale and in the enjoyment of good health. Females are likewise long-lived, and many Mahomedan as well as Hindoo women octogenarians may be seen.

The town of Old Jaulnah contains a population of about 10,000 persons; of these 2,000 are Mahomedans, the rest are of different sects of Hindoos. The town, now in a great measure deserted and in ruins, is of considerable extent; but from the superior construction of its small fort, situated on the bank of the Jaulnah river, and of the houses, many of which are built of hewn stone, it has evidently been a place of great opulence. An extensive trade was carried on here in grain and silks, which has now greatly declined; but a manufacture of silk cloths for native use is still kept up: they are chiefly exported to the upper Mahratta country. The reduction in the population, which was formerly much more numerous than at present, is attributed to the oppression and extortion of the native government.

River water is always preferred by the natives, when procurable, for culinary purposes; and although Jaulnah is abundantly supplied from wells, every garden possessing one, the water is seldom good, being strongly impregnated with nitrate of potass.

In the cantonment there are but two or three wells of which the water is drinkable; but even in the driest seasons there is no scarcity.

The streets in the towns of Jaulnah and Khaderabad are very narrow; the houses are tiled, and those belonging to the wealthier natives are often ornamented with figures representing subjects of Hindoo mythology. Some of the houses consist of three or four stories, with a corresponding number of verandahs and balconies. The groundfloor is sometimes made of stone work, overlaid with burnt bricks and chunam, and the houses generally have a cleanly appearance.

Firewood and charcoal are brought from a distance of 20 miles; the former, with dried cow-dung, is used for cooking, and fires of charcoal are kept burning by the more wealthy natives in the cold weather in their apartments.

The pugrie, ungrekah, and dhoputtah are the description of clothing in use with the men, and in the cold weather a quilted ungrekah, cumblie, and Mahratta shoes are always worn; the usual cholie and sarree constitute the dress of the female.

Opium is freely indulged in by the Marwarries and Mahomedans; and all castes and denominations give it to their children till they are five or six years old, for the purpose of assuaging pain, and also to promote sleep, in order that their occupations may not be interfered with by attendance on them. Opium is not, however, taken in excess by these people, and intoxication from the abuse, or too free indulgence in the drug, is rare.

The poor are not numerous, and work can readily be obtained by all labourers desirous of employment. It is computed that a labouring man can support himself for about one rupee and a half monthly, the few coarse articles of raiment required included.

In the neighbouring villages horses of good descriptions were formerly bred, and some of them were well adapted for the cavalry, but of late years the breed has become deteriorated; draft horses and buffaloes are also numerous, the neighbouring downs affording fine pasturage; and milk and butter are of exceed-

ingly good quality. Good working bullocks for carts or carriages may be purchased for twenty rupees per pair ; and excellent milch cows at from seven to ten rupees ; but milch buffaloes bring about twenty rupees each. Great numbers of the latter, being esteemed a superior breed, are sent for sale to Hyderabad, Sholapore, Dharwar, Hoobly, and many other large towns to the southward. Sheep and goats are in abundance. The mutton is of a superior description and flavour ; and butchers' meat will generally bear a comparison with that in any part of southern India, and is moreover cheap. Poultry, on the contrary, is sold at high prices.

The cantonment is situated on a gently sloping declivity, a small range of hills in front, from one to two miles distant, forming a sort of amphitheatre. The cavalry lines are on the south-east, those of the horse and foot artillery on the north-west, and the infantry in the centre. The town of Khaderabad lies within two miles of the cantonment, in a south-westerly direction. The small river Goondlacama forms the boundary of the cantonment. The cantonment is capable of affording accommodation to one troop of European horse artillery, one regiment of native cavalry, and three regiments of native infantry. The cavalry lines are situated on a gentle acclivity, the barracks or places for saddlery and arms, eight in number, facing to the north ; the store rooms, gram godown, and standard yards are on the opposite side and lying parallel with the horse lines ; in the centre is the hospital ; at the extreme end of the barracks, within about a hundred yards, are the lines for sick horses, facing north and south.

The officers' houses are in rear of the barracks, and the sepoy's huts 200 yards to the southward of these.

The barracks of the horse artillery are unexceptionably situated on the highest ground in the cantonment, between the lines of two infantry corps (one of which is now unoccupied), the ground in front being open for several miles ; a little to the right and in front the arsenal, the only building in advance of the lines. A branch of the river Goondlacama runs close to the left ; and the barracks, sergeants' quarters, and store rooms form the east and west sides of an oblong square, the north end of which is occupied by the cookrooms and godowns.

The hospital is a good building, close to the barracks, 60 feet by 21, and holds twenty cots ; the east verandah forms a surgery, and the western one is appropriated as a female ward.

From the ground having a natural slope towards the river, the drainage in all parts of the cantonment is good ; the roads are easily kept in repair, and the locality is in every respect well chosen, and favourable to the health of the troops.

KHADERABAD.

On the opposite side of the small river Goondla, within half a mile of Old Jaulnah, is the town of Khaderabad, which is surrounded by a high stone wall, and contains about 7,000 inhabitants ; 1,000 are Mahomedans, and the remainder Hindoos ; Marwarries among the latter are a prominent class, who labour assiduously in their vocation as soncars and shroffs. A large and flourishing trade was carried on here, as well as in Jaulnah, about 25 or 30 years ago, in silk and cotton, which afforded employment to 4,000 or 5,000 weavers, and beautiful fabrics of silk were manufactured, and sent to all parts of the country ; cotton cloths and muslins, of different textures, were also extensively made, and met with a ready market. But from various causes, such as the great influx and cheapness of English manufactures, the taxation of the Nizam's government, and the exaction and rapacity of the public servants, the trade has greatly declined, and the numbers of these industrious artizans diminished. The principal manufactures are sarrees, pugries, kummurbunds, coarse muslins, and the coarser kinds of cotton cloth. The cotton raised in the neighbourhood is chiefly used for home consumption, and is of superior quality.

A beautiful description of scarlet dye is prepared here, and sent to Bombay, where it is much prized for the brilliancy of its colour. Wood is scarce and dear, teakwood being in the greatest estimation ; it is brought from the jungles of Nirmul and Massuck, and is used in building and making furniture.

GOONDLACAMA.

A river in the province of Aurangabad. It takes its rise near Tuperan and Rajore, two small villages situated about sixteen miles to the northward. In its course it receives several tributary streams, and empties itself finally into the Doodna, a branch of the Godavery, fifteen miles to the south-east. During the monsoon it comes down with great violence, and at this period is in many places a hundred yards broad; but on the cessation of the rains it soon subsides, and in the dry season diminishes to scarcely one foot and a half in depth, and ten or twelve in breadth. It is generally fordable at all seasons. The river water is much esteemed by the natives for domestic purposes. Excellent fish is occasionally procured from deep pools left in its bed on the subsidence of the monsoon.

JOONEER,

or more properly Junar, a large town in the collectorate of Poonah, in the British Deccan, situated in latitude $19^{\circ} 12'$, longitude $74^{\circ} 18'$. It lies at the foot of a basaltic hill crowned by a fortress naturally strong, in its steep and rugged approaches. Its population may be estimated at about 8,000 inhabitants. The ancient line of commerce from Deoghur, the modern Dowlatabad, to Callian, the Kalliara of the Periplus, passed through this town, and the numerous Buddhist remains that are to be met with on all these ancient routes are here abundantly present. Extensive series of caves are found piercing the sides of the hills in every direction around the town; they consist of one or two Chaitya or waggon-vaulted caves, with the Daghepa, and other Buddhist emblems; Viharas or monasteries, hermitages, vaulted reservoirs for water, and tanks with stone benches. Inscriptions frequently occur in the old Pali, supposed to belong to the second or third century before Christ. The hill fort of Sewnair, situated close to the town of Jooneer, is remarkable for having been the birth-place of the celebrated Sivajee.

GOOLBURGAH.

Formerly the capital of the first Mahomedan kingdom in the Deccan, founded in the fourteenth century, and remarkable in history for little more than a succession of wars with the neighbouring Hindoo princes, especially Beejanuggur. After the reign of seven kings the seat of government was transferred to Beder. With the exception of a strong stone fort, in which is an unfinished mosque of very large dimensions, and numerous tombs mostly of a clumsy and primitive style of architecture, there are no remains to mark its former greatness. It would probably have long ago dwindled into complete insignificance if it had not been for the celebrity of the shrine of Syud Mahomed Gheessoo Duraz, now known as Khajah Bundeh Newaz, a saint who flourished during the existence of the kingdom. A very large concourse of people used to be attracted to the tomb during the Ooruss held on the anniversary of the saint's death. The vices of his descendants having led to the expulsion of the family from Goolburgah, and to the appointment of a government nominee to receive the revenues assigned for its support, the attendance at the Ooruss has fallen off. Goolburgah is now the head of a talook yielding above three lacs of rupees, and governed by the Talookdar's Naib. Since the year 1841 the head-quarters of a corps of Nizam's cavalry has been stationed near the town, to suppress the marauding propensities of the neighbouring Baidur and Canarese population. The country is a bare undulating plain with low hills at the distance of four or five miles. The climate is mild with neither excessive heat nor any great degree of cold; average of the thermometer $82\frac{1}{2}$, latitude $17^{\circ} 20'$ north, longitude $76^{\circ} 54'$ east.

BOLARUM.

A military cantonment in the Deccan, Nizam's territories, situated about twelve miles north to the city of Hyderabad, and about five north of Secunderabad, through which the road to it passes.

The station has military lines for two battalions of infantry, a rissallah of irregular horse, and 250 artillery.

PHYSICAL FEATURES AND NATURAL PHENOMENA.

It has a very handsome little church of Gothic architecture with coloured glass windows, pronounced to be the handsomest church in the Deccan, which it is expected will shortly be occupied by a clergyman from the Colonial Church and School Society; also a cantonment free school, and a complete arsenal for the supply of military equipments for the Nizam's contingent.

The granitic ridge on which the station stands is 1,890 feet above the level of the sea, and about 50 or 60 feet higher than Secunderabad. This ridge, though of considerable extent, and forming an open plain on the higher and eastern side of the cantonment, of six or eight miles in circumference, is bounded on all sides by paddy fields, and there are several small tanks scattered about the vicinity.

The gardens produce all kinds of European vegetables, some of them in great perfection, and besides the common Indian fruits there are the finest sorts of mangoes, and also grapes, strawberries, peaches and pine-apples.

The range of the thermometer throughout the year may be stated at from 49° to 90° in the shade, though in the hot months it sometimes rises much higher. In June, July, August and September the winds are westerly; during October, November, December, January and February they blow from the east; and in March, April and May the north-westerly breezes are frequent.

The annual fall of rain may be taken at from 25 to 30 inches, which occurs principally in the south-west monsoon, or between June and October. In the north-east monsoon 4 or 5 inches have been known to fall during the month of December, but this is unusual, and only happens occasionally.

Bolarum is considered one of the most healthy stations in the Deccan, and invalids consequently resort to it for change of air, particularly from Secunderabad, and often with the most decided benefit. No rank vegetation is permitted to spring up within the limits of the cantonment, the hedgerows are cut down annually to a certain height, and the place is consequently open and in a great measure free from the sources of noxious exhalations, which besides being a nuisance are the frequent causes of sickness at large military stations.

BOWENPILLY.

The cavalry lines of the Nizam's force, situated at about two miles north of Secunderabad. The ground is elevated and dry, and the regiments stationed here have generally been healthy and free from epidemic diseases.

MOODIANUR.

A small walled town in the Nizam's dominions, on the old tappal road from Bellary to Bombay, 74 miles 3 furlongs distant from the former station. It contains about eighty inhabited houses, four wells of fresh water,—which with a small stream are sufficient for the supply of two regiments for a month,—four choultries, and three pagodas. It can supply one hundred draft and fifteen carriage bullocks.

The inhabitants are chiefly Ling Bujars, speaking Canarese, and engaged in ploughing. Chloritic and hornblende schists appear to be the prevalent rocks in this vicinity.

SASSENHAL.

A small walled village in the Nizam's territories, on the old tappal road from Bellary via Bejapore to Bombay, 67 miles 5 furlongs distant from the first station.

It contains twelve inhabited houses, a choultry, a pagoda, two wells of fresh water, and can supply twenty-four draft bullocks. The inhabitants are agriculturists, speaking the Canarese language.

The prevalent soil in the vicinity is the red or Mussub: there is a good deal of dry cultivation on the nullah banks.

IDLAPUR.

A village in the Nizam's dominions, on the old tappal road from Bombay, via Bejapur to Bellary. 67 miles 7 furlongs distant from the last place. It is prettily situated in the midst of a small cluster of hills, though inconveniently for the

HYDERABAD AFFAIRS.

inhabitants, who have a long distance to go for water in the dry season. It has been consequently almost deserted.

These hills are composed of hornblendé and chloritic schists passing into a soft purplish slate clay, and often capped with a jaspery ironstone occurring in alternate laminae with a schisty quartz. Haematitic iron ore and nodular kunkur occur in scattered fragments, but observed in greatest abundance in the nullah beds, where they may be seen united in a conglomerate.

TAWERGHIRI.

A decayed town and fort in the south-west angle of the Nizam's dominions, on the old tappal road from Bellary to Bombay, via Bejapore, and 62 miles 1 furlong distant from the first named of these places.

The fort, which is commanded by a lofty detached cavalier, is in ruins. Near the gateway the first object that attracts the attention is the tomb of a holy Mahomedan.

There are many Hindoo temples scattered around, dedicated principally to Hanuman and Shiva, but they are in a deserted state. An Idgah is seen at a little distance from the town. There is also a Jumma Masjid. A Mussulman kfiledar, a Hindoo Potal and Curnum, are the principal authorities on the spot. The town contains about two hundred and fifty houses, inhabited principally by Ling Buljars and Mussulmans; it carries on a petty trade in cloths of local manufacture, and has a market held on Saturdays. It can supply about one hundred and fifty draft and fifty carriage bullocks. Most of the wells here are brackish, four only producing fresh water.

The surrounding country is partly enclosed, affording towards the south-east, however, space for the encampment of two or three regiments.

Granite is the principal rock seen in the vicinity, with a reddish felspar. It occurs in clustered blocks.

The soil is reddish and firm.

The principal grain produced is yellow jowaree.

UMALUTI.

A walled village in the Nizam's dominions on the old tappal road from Bellary to Bombay, via Bejapore, 56 miles 5 furlongs distant from the former place.

It contains about fifty houses,—inhabited principally by the Boyi caste, speaking Canarese,—fifty draft bullocks, one shop for grain, two choultries, three pagodas, and two wells of fresh water.

There is also a small stream of good water running through a date grove a little to the N. W. of the village; between them extends a slope of firm red soil, which presents an eligible spot for encampment, though not very spacious.

Granite and gneiss are the prevalent rocks.

MANADJIAL.

A small decayed town in the Nizam's dominions, on the tappal road from Bellary to Bombay, 58 miles N. W. from the former station. It consists of a pettah, and ruined fort distinct from the pettah, and contains about seventy inhabited houses, six grain shops, six fresh-water wells, five pagodas, and one choultry. It can supply about 50 draft and 15 carriage bullocks.

The inhabitants are principally Ling Buljars, speaking Canarese, and engaged in agriculture.

The fort is a little to the south of the pettah, and contains the ruins of the house of the former Dessaye. There is a good encamping ground to the westward of the fort for about four regiments, on reddish soil. The next march towards Bombay is to Sassenhul, and as far as Nandapur lies over elevated rocky ground covered with jungle; from the latter place to Sassenhul the road is good, lying over a reddish and firm soil.

HULIKADDRA.

A small walled town, with dry ditch and glacis, in the Nizam's dominions, on the tappal road from Bellary to Bombay, via Bejapore, 53 miles 6 furlongs distant from the former place. It contains about two hundred houses, one shop, and eight

wells. The encamping ground to the north of the village is on firm red soil, but confined from the cultivation.

SUNJUNHAC.

A small village in the Nizam's dominions, on the old tappal road from Bellary to Bombay, 49 miles 4 furlongs distant from the former place; it contains about thirty houses, a choultry, a pagoda, a well of fresh water, and about 20 draft bullocks. A stream here, with the well, affords water sufficient for a couple of regiments. The inhabitants are of the Boyi caste, and speak Canarese.

NOULI.

A walled town in the Nizam's dominions, on the old tappal road from Bellary to Bombay, 46 miles 2 furlongs distant from the former place. It is situated on the right bank of the Nouli stream, which flows into the Toombuddra, and yields an abundant supply of fresh water. It is here 180 yards broad, bed sandy, banks sloping. It is unfordable in the rains but generally down in about forty-eight years (? hours).

The encamping ground is indifferent; the soil is black cotton mixed with gravel.

On the 8th of September 1800 the Duke of Wellington left his infantry at this place while he pushed with the cavalry on to the destruction of Dhoondia and his army of freebooters, which was effected two days afterwards at Cowagul, a small village about twenty-eight miles N. E. from Nouli between Bunnoo and Jepulparry.

CHULLOOR.

A village in the Nizam's dominions, on the old tappal road from Bellary to Bombay, via Bejapore, 46 miles N. W. from Bellary.

It is inhabited principally by Hindoos of the Boyi caste, speaking the Canarese language, and occupied in agriculture.

There are two good wells of fresh water, sufficient for a month's supply in the dry weather for a regiment.

The road from Mustoor, on the left bank of the Toombuddra to Chulloor, lies over an undulating plain, and is a mere footpath, good in fine weather, but heavy in wet.

The soil is black cotton and red clay. From the prevalence of the former, which is encumbered by bushes, there is no good encamping ground near the village.

Gneiss and its subordinate schists, mica, hornblende and chlorite, are the prevailing rocks.

KANNAGHERRY.

A town in the Nizam's dominions, containing about 500 houses, sixteen grain shops, fifty wells of fresh water, and can supply 100 good draft and 30 carriage bullocks. The most prevailing caste is the Golavari, speaking Canarese, and engaged chiefly in trade. The road hence to Manadhal, the next march towards Bejapore, is good for foot-passengers, though stiff, lying over an undulating jungly tract. The soil is for the most part red and firm, without any scarcity of water.

A little to the north-east of the fort stands a large slab of greenstone, with several male and female figures in *alto rilievo*. This is the monument of the ancient Hindoo princes of Kannagherry of the Beder cast. The equestrian figure is that of Warus Naique, the great benefactor of the temple; his head is protected by a close skull-cap resembling a bassinet. The lower part of the sculpture is buried in earth, and one of granite is almost entirely hidden. Hard by stands a terrace on which the bodies of Hindoos of rank were formerly burned. To the south-east of the fort lies the tomb of a Gossain, and a Jungum cemetery. The latter is a walled enclosure; underneath are subterraneous vaults with flights of stone steps containing the bodies of the priests. Facing the north is a small temple covering the phallic emblem, under which they worship the destroyer, and in front of it grows the sacred Bulpatar with its long green thorns, and myrtle-shaped leaf. On the walls are seen bas-reliefs of the trisula (trident), chank (conch shell), and chuckrum (the Indian discus); also several figures having wings like cherubim in a precatory attitude. If we may judge by the numerous ruins, sculptures, and mounds scattered around, Kannagherry must have been once a place of great size

HYDERABAD AFFAIRS.

and importance. It is now comprised in the south-western division of the Nizam's dominions, the government of which is entrusted to a chief who resides at Gangawati, near Annagundi.

Around the town there is a considerable extent of plain under wet cultivation.

The Duke of Wellington encamped here on the 7th of September 1800, in his chase after Dhoondia; he marched hence on the 8th, and leaving his infantry at Nouli pushed on with the cavalry to Jepulparry, where he arrived on the 9th.

The following morning he met, defeated, and slew Dhoondia at Conagul, a small village between Jepulparry and Bunnoo.

SIDDAPORE.

A small town and fort in the Nizam's dominions, on the old tappal road from Bellary to Bombay, via Bejapore, 37 miles 5 furlongs distant from the first-mentioned station. It contains about two hundred inhabited houses, four choultries, two pagodas, one grain shop, two wells of good water, which together with the stream on the banks of which it is situated, afford an ample supply of water. Three hundred draft and thirty carriage bullocks are procurable at this place. The inhabitants are mostly Lingayets, engaged in agriculture. The prevailing language is Canarese.

North of the town is tolerably good encamping ground for five or six regiments. The prevalent soil is the black cotton, and a red sandy clay.

The road from Siddapore to Chuloor is a mere footpath, intersected by the Nouli river, which is about 260 yards wide, and is sometimes unfordable in the rains for a couple of days, at other times it is nearly dry.

MUSTOOR.

A walled village in the Nizam's dominions, on the northern bank of the Toombuddra, 31 miles 7 furlongs distant from Bellary.

There is a ferry here at which two basket boats are generally stationed to cross to Hulhally, the village in the Company's territories on the opposite bank. Mustoor has an ample supply of water from the river: it contains about fifty inhabited houses, two choultries, two pagodas, and can supply fifty draft and ten carriage bullocks.

The prevalent caste is the Ambikar, speaking Canarese, and engaged as boatmen and agriculturists. There is an extensive space for encampment to the west of the town, a little distance from the river bank, on firm clayey red soil.

GUNGAWATI.

A walled town and mud fort in the Nizam's dominions, situated at the S. E. flank of the granite range of Annagundi; its site is distinguished at a distance by a dome-shaped hill which surpasses its neighbours in height. The town is about five miles north from the Toombuddra, seven miles north by east from the ruins of Annagundi, and thirty-six N. W. from Bellary. It is the residence of the Nizam's deputy, who has charge over the whole of that part of the frontier that is contiguous to the Ceded Districts, bounded by the Copaldroog district on the west, Pangtoor on the east, the Bheema and Kistnah on the north, and the Toombuddra to the south, including the provinces of Raichoor and Mudgal.

HALLICUND.

A small village, 5½ miles S. W. from Bellary, on the Raidroog and Chittledroog road. It possesses a ruined hill fort, built by one of the Nairs of Bellary, commanding the eastern outlet of a small pass leading over the southern shoulder of the Copper Mountain range.

The prevailing rock here is a gneiss, approaching often to a granite, but in most situations distinctly stratified, and often contorted. The surrounding soil, though stony, is fertile, and well watered. One of those singular mounds of calcareous scoriz, traditionally supposed by the natives to be the remains of the funeral piles of the giants of old, is found near the village.

Extract from "Public Works in India," by JOHN BOURNE, Esq.;—pp. 46-49.

THE GODAVERY.

This is a river which, rising near Bombay, and flowing eastward through the heart of the cotton districts of the Deccan, empties itself into the Bay of Bengal at Coringa, to the north of Madras. Although capable of affording a commodious outlet for the cotton and other produce of Berar, and with a sufficient depth of water to enable navigation to be carried on throughout the year, the Godavery is nevertheless, up to the present time, without any system of navigation, such as is possessed by the Ganges and other rivers. This anomaly is to be imputed partly to the circumstance that the jungle in many of the districts through which the river flows comes so close to the water's edge, and is so impervious and entangled, as to prevent the boats from being tracked upwards against the stream; and partly to the exactions of the officers of the Nizam, who, however, would have no power over English vessels. In 1816 Messrs. Palmer and Co. of Calcutta formed the design of establishing a navigation upon the Godavery and Wurdah of 400 miles in length, and with this object they removed certain obstructions out of the bed of the river; but political events occurred which prevented the project from being carried into practical effect. As the river approaches the Rajamundry frontier it has to pass through the Papkoonda mountains, where it is contracted from a mile and a half to a furlong in breadth, and consequently runs with great velocity, but there are no falls to obstruct the navigation. In various parts of the channel between Berar and the sea the depth during the dry season does not exceed 18 inches; nevertheless, as such a depth is sufficient for a steam-vessel of the kind proposed, there is no difficulty in the establishment of an efficient system of steam navigation upon this river. Captain R. H. Fenwick, after a personal survey of the locality, says: "That the navigation of the Wurdah from Woonee to Kalisir, and of the Godavery from Elgarp near Neermul to the coast, is practicable there remains no longer any doubt;" and H. Chamier, Esq., the Secretary of the Madras Government, writing to G. A. Bushby, Esq., Secretary to the Government of India, in August 1840, suggests the propriety of a steamer being put upon the Godavery to facilitate the transport of troops to Nagpore. Mr. Secretary Chamier writes as follows:—"Captain Fenwick, in para. 10 of his letter, states that he considers the Godavery and Wurdah rivers navigable for mercantile purposes, and offering a more advantageous mode of conveying cotton from Berar and the Nagpore territories to the eastern coast than on carts and bullocks by land." Mr. Chamier therefore adds:—"It appears, therefore, probable that steamers like those on the Ganges might ascend the Godavery to a considerable distance, and afford great and important advantages, not only to trade, but especially for the conveyance of troops and stores for Nagpore and Jubbulpore."

The distance of Nagpore from Woonee in a direct line is about 70 miles, which is somewhat less than the distance from Nagpore to Chandah. The distance of Oomrowty from Woonee is about 100 miles; but the Wurdah river ascends to within 20 miles of Oomrowty, and would be navigable by a smaller species of boat up to the vicinity of Natchengong, 30 miles below Oomrowty, where a fall in the river occurs, and over which boats cannot pass except in the height of the rains.

There can be no doubt, in my apprehension, that the larger part of the cotton of Berar would descend the Godavery if an efficient steam navigation were established upon that river, which would carry the article from the place of its production to the sea at a moderate rate of freight; and the quantity of cotton grown would probably increase with the new facilities given to its conveyance, while at the same time the price of the article would be diminished to the English manufacturer. It is obvious, too, that since it is about the time of the monsoon rains that the cotton has to be transported, those rains, instead of impeding, would extend and facilitate communication if the rivers be made the highways; and the rivers would be most available for active service precisely at the time when the roads are closed by the floods.

Besides cotton, a steamer upon the Godavery would carry downwards silk,

HYDERABAD AFFAIRS.

linen, shell lac, turmeric, grain, goor, oil, hemp, tobacco, bees' wax, &c.; and upwards cotton and woollen cloths, salt, sulphate, spices, iron wares, and metals, &c. The quantity of these articles which would be available as cargo for a steamer it is impossible at present to specify, but there can be no doubt that at least one steamer would find full and profitable employment. And when it is remembered that the Godavery, if navigated by steam, would become the highway to the heart of the Deccan, and must transmit the accumulated produce of extensive districts, it will be obvious that the traffic, though of uncertain amount, cannot but be large; while the very fact of opening the river to steam navigation would not only divert the existing trade into a more eligible channel, but also materially increase its amount.

